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USSR Report

CONSTRUCTION AND EQUIPMENT

No. 31

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CONSTRUCTION

PROPOSED CHANGES TO CONSTRUCTION MANAGEMENT FRAMEWORK

Moscow DEN'GI I KREDIT in Russian No 11, Nov 80 p 27

[Article by L. I. Mazurin, director of technical management, member of Construction Bank governing board: "Issues in Managing the Economy: On Improving the Organizational Framework of Construction Management"]

[Text] The June 1980 CC CPSU Plenum reached the decision on convening the 26th CPSU Congress. Every Communist Party congress is a hallmark event in the country's history, and greeting this forum of communists with intensive labor efforts and new labor accomplishments has become a fine tradition.

As are all the Soviet people, builders are exerting maximum efforts to fulfill and overfulfill target quotas this final year of the five-year plan. They are faced with the task of completing construction projects in a timely manner. Putting new production capacities into operation and assimilating them is of primary significance, not only in successfully fulfilling this year's plans, but also in forming a solid base for further build-up of the country's economic potential.

More than one-fifth of the national income is allocated annually for capital construction in our country. For four years of the Tenth Five-Year Plan, capital investments for development of the economy surpassed the five-year plan goal, and totaled more than 500 billion rubles; about 1000 large-scale state industrial enterprises were commissioned. Approximately 460 billion rubles of fixed capital was put into operation over this period. Over two-thirds of the fixed production capital at the country's disposal by 1980 was generated over the preceding decade. In the current, final year of the five-year plan we will have to put 119 billion rubles of capital state investments into production, 70 percent of which will fund construction projects underway.

Our country has enormous available potential for further development of the economy; colossal reserves are at its disposal for increasing economic opportunities. "But in order to utilize them," CC CPSU General Secretary, Comrade L. I. Brezhnev points out, "a rise in the level of management is necessary, in the broadest sense of these words."

Development of the organizational framework of management is one of the most vital elements in improving administration of the economy. Developing and incorporating general management models for capital construction provides the most significant potential for enhancing the effectiveness of capital investments and for achieving as quickly as possible the end results of economic activity. Consolidation and specialization of the primary elements in construction will permit improvement in utilizing existing production capacities, and will facilitate incorporation of the achievements of scientific and technological progress, and arriving at an integral technological policy.

The 12 July 1979 resolution of the CC CPSU and USSR Council of Ministers, "On Improving Planning and Intensifying the Influence of the Economic Mechanism on Raising Production Efficiency and Work Quality" stipulates that USSR construction ministries, USSR ministries and departments that have construction organizations, and the councils of ministers of the union republics must work out and implement measures to develop capital construction management, with an aim toward shifting to a two- or three-tiered management system. Production, construction and installation associations (or trusts, in certain cases) must become the basic cost-accounting element in construction production.

These measures are the practical realization and subsequent development of the decisions of the 25th CPSU Congress that envisaged the necessity to improve capital construction management, to develop and simplify organizational systems and frameworks in the construction industry, and to consolidate the primary elements of construction and installation organizations, to increase the level of production specialization.

The organizational framework for construction management that has taken shape and is in operation today is complex, multi-tiered (basically four- and five-tiered systems), and diverse.

The simplest of the systems in operation, the three-tiered management system, has been formed in the Main Administration (Moscow) for Engineering Construction, the Main Administration (Moscow) for Specialized Construction and Installation Work, the Main Administration (Leningrad) for Engineering Construction, the Main Administration (Kiev) for Construction, the Main Administration (Moscow oblast) for Construction, the Main Administration (Baku) for Construction, the Main Administration (Tashkent) for Construction; three- and four-tiered systems are found in the Main Administration (Moscow) for Construction, the Main Administration (Moscow) for Industrial Construction, and the Main Administration (Leningrad) for Construction. Four- and five-tiered systems are the most widely propagated construction management systems in seven construction ministries and in the USSR Ministry of Power Engineering. Contracting organizations belonging to a four-tiered management system, for example, completed 68 percent of the overall volume of contracted projects for these ministries in 1978; those belonging to five-tiered systems accounted for 29.4 percent; to three-tiered systems only 1.6 percent.

Here it might be noted that the proportion of above-mentioned management systems in certain other ministries is considerably greater.

The presence of four-, five-, and six-tiered construction management systems causes great administrative and operating expenses. It should be noted in this regard that the more management elements that exist, and the more complex the design structure of construction management organs in a ministry or department, the greater is the ratio of engineering and technical personnel, service and building maintenance personnel, and other employees per million rubles of completed construction and installation projects.

The presence of multi-tiered construction management systems in the Ministry of Heavy Construction, the Ministry of Industrial Construction, the Ministry of Construction and the Ministry of Agricultural Construction results in a situation where the proportion of workers in the above-mentioned categories engaged in construction in these ministries is up to twice that found in the Ministry of Transportation Construction, the Ministry of Power Engineering, the Main Administration (Leningrad) for Construction, the Main Administration (Moscow) for Construction, the Ministry of Special-Purpose Construction and Installation, and the Ministry of Gas and Petroleum Construction, where there are fewer management elements, and the organization framework is simpler.

Along with its diversity and complexity, and the multi-tiered aspect of the organizational framework of construction management in the same administrative and economic rayons (union and autonomous republics, krays, pblasts and major cities), contracting organizations of various ministries and departments (both within and outside the construction industry) are duplicating their operation and completing construction and installation projects of the same designation.

In spite of the increase year after year in absolute volume of contracted projects completed by organizations of the construction ministries, main construction administrations under executive committees and the USSR Ministry of Power Engineering, the proportion of projects they completed over the period 1967-1978 continually decreased compared to the overall volume, whereas for those completed by contracting organizations of other industry ministries and other organizations of the councils of ministers of the union republics, the proportion was increasing.

For example, in 1967 the proportion of contracted projects accomplished by contracting organizations of the USSR construction ministries, main construction administrations under executive committees and the USSR Power Engineering Ministry amounted to 79.2 percent of the overall volume of such projects completed with respect to the national economy as a whole by primary state contracting organizations. In 1978 it amounted to 72.2 percent. In organizations under the jurisdiction of other, non-construction ministries and departments, this percentage increased over the same period from 11.9 to 14.9 percent; for organizations subordinate to councils of ministers of the union republics--from 8.9 to 12.9 percent.

Analysis of the development of industrialization, specialization in construction, and subcontracting between industrial enterprises for joint work on a project, and of the interrelationship of these factors within the organizational framework of construction management has shown that, over the past 10-15 years, the functions of trusts and primary contracting organizations throughout the construction industry that, as a rule, act as general contractors, have changed significantly. The proportion of construction and installation projects these organizations have completed using internal resources has dropped sharply. In addition, their present functions have grown significantly more complex, and new ones have appeared in the areas of project planning and supervision of project completion, engineering training for the construction industry, coordination of subcontractor functions, introduction of progressive methods in project organization and implementation, automated management systems.

All of this once again reaffirms the necessity of improving the organizational framework of construction management. This can be achieved by further developing it, eliminating duplication and the multi-tiered aspect, consolidating the lower-level contracting organizations, and increasing specialization in the construction industry.

It is the major production associations for construction and installation (trusts, in certain cases), those formed as a result of consolidating the existing large quantities of construction and installation projects, of both general and specialized construction contracting organizations, in all economic and administrative rayons, krays, oblasts and concentrated areas, that must become the basic, primary element, endowed with the rights of the socialist state enterprise in the two- and three-tiered management system.

Production associations for construction and installation must comprise construction and installation subunits (both general-construction and specialized), transportation facilities, administrations for mechanization, and production and technology integration, a production warehouse (with the exception of major enterprises serving several associations), other organizations and facilities.

The practical functioning of major associations and analysis of their economic activity shows that such associations have the potential for systematic growth of specialization, for lowering the estimated costs of projects they are carrying out, for economizing on utilization of material-technical, manpower and financial resources. They make more widespread use of advanced technology and organization of work procedures and project completion, while efficiently utilizing highly productive construction equipment.

In our view, it would be advisable for the production association for construction and installation to have jurisdiction over all the general-construction and specialized organizations (except those subordinated to special construction ministries) functioning within its area of operations. Of those specialized organizations subordinated to special construction ministries, there is every reason to also include within the purview of the production association for construction and installation those engaged in relatively simple specialized construction work (sanitation, electricity, insulation, etc.), in particular, those subordinated to the Ministry of Specialized Construction and Installation. In order for the association to provide timely, high-quality planning estimates for projects scheduled for construction, it would be advisable to include planning organizations or their affiliates within its purview, that would accomplish project planning either partially or as a comprehensive package, would draft building (structure) blueprints, work out the technical assembly and rigging that accompany completion of construction and installation projects, and also would prepare construction organization plans (COP's) and work plans (WP's). Prescribing these functions for the association will, in our view, not only permit timely planning estimates (with minimal manpower expenditure and a sharp drop in the volume of construction planning documentation), but will at the same time enhance the role and significance of construction organization plans and work plans, and will make them effective engineering-economic documents, that provide for progressive construction methods substantiated by technical, scientific and economic factors, and provide for organization and industrialization of construction.

It is proposed that such production associations for construction and installation assume the role of general contractors for construction projects located in their area of operation. If specialized subcontracting organizations are involved, coordination of their activities and all or part of their management, financial and accounting functions will be accomplished by the production associations for construction and installation.

Production associations for construction and installation must become the major territorial organs of construction management, combining administrative and operational management functions, and embracing the most favorable conditions for improvement of cost accounting, application of the new economic mechanism, and automated construction management systems.

Due to local territorial, geographical, climatic and other particular features, there will be certain instances where it is proposed that construction and installation trusts, house building, plant building and rural construction combines (HBC, PBC, RCC) will become the basic (primary) element in construction management, and will be granted the rights of socialist state enterprises.

The next structural element in construction management, the middle one in a three-tiered system, should, in our view, be the union republic construction ministry, the union republic construction and installation association, the territorial construction and installation association, the all-union and republic construction and installation association. Here the union republic construction and installation associations can be formed based on the union republic construction ministries, the union republic main administrations, and the construction administrations of the union republics.

It would be advisable to form the territorial construction and installation associations on the basis of existing territorial main administrations, territorial construction administrations and associations, construction combines, construction and installation trusts and other organizations.

The following elements ought to be included in the structure of these territorial construction and installation associations as well as in that of the production organizations for construction and installation (and in certain instances that of construction and installation trusts, and HBC's, PBC's and RCC's that act as basic, primary elements): mechanization trusts, trusts for technological and industrial integration; major industrial construction enterprises (serving several production associations for construction and installation); transport enterprises and organizations; planning, planning and procurement, planning and design organizations for all-inclusive project planning for an internal production base, construction work planning, and developing construction organization plans (COP's) and work plans (WP's), for construction-installation and technical outfitting; housing and municipal services; scientific research institutes and trusts (institutes) of the State Institute for the Introduction of Advanced Operational and Labor Methods in Technical Construction, other enterprises and organizations.

It would be advisable, in our view, to form all-union and union republic associations for construction and installation in the special USSR construction ministries (Ministry of Transportation Construction, Ministry of Gas and Petroleum Construction, Ministry of Special Construction and Installation), the USSR Ministry of Power Engineering, Ministry of Water Management, Ministry of Communications, etc. These all-union and union republic construction and installation associations should be specialized by type of construction, type of project, industrial sector indicator.

All-union associations for construction and installation may be formed as well in the non-specialized USSR construction ministries--the Ministry of Heavy Construction, Ministry of Industrial Construction, Ministry of Rural Construction; they can be specialized by industrial sector indicator for the project, by type of construction, and even by type of project.

The development of general models for construction management, and the reorientation of the organizational framework to accompany transition to a two- or three-tiered management system, along with the formation of large production associations for construction and installation and the expansion of production specialization, are based on the necessity to speed up the realization of production capacities, residential housing projects and fixed capital, the need to raise labor productivity in the building industry and enhance the effectiveness of capital investments and construction production, to lower production costs in construction and installation projects and improve the quality, to cut down the time required to achieve the final product. In addition, unwarranted duplication in the territorial sphere of activity by identical construction and installation organizations of various ministries and departments is being eliminated.

To achieve this it would be advisable to review the territorial sphere of activity for the construction ministries, departments and organizations for construction and installation in the non-construction ministries and departments, with the aim of improving it, of effecting more precise and broader specialization, of extending and developing the territorial industrial sector principle, taking into account districting of economic rayons, changed geography in construction projects, the development and establishment of major production and industrial complexes on a territorial basis, major fuel and power complexes.

The CC CPSU and USSR Council of Ministers resolution of 12 July 1979 envisaged an evaluation of the economic activity of construction and installation organizations, along with indices showing the degree of goal achievement with respect to realizing production capacities and projects, indices of growth in labor productivity and profit, and indices of job accomplishment in commodity construction production.

Production associations for construction and installation (trusts, in certain cases) will be engaged in construction and installation work for projects in various sectors of the economy, separated over significantly great territorial distances, and having varying degrees of complexity and technological characteristics with respect to construction. In this light, the basic indices to be considered in determining the organizational framework of association management should be the following: volume of commodity production (the estimated cost of construction and installation work for completed enterprises and for those where the client has accepted them as ready--sections, complexes and underway projects prepared for output of products and services related to an approved plan); the cost of commodity production in industrial enterprises and subsidiary production; the estimated cost of planning operations and scientific research efforts for plans that have come through the drafting stage and themes for which there are written studies, these products having been accepted by the clients; the number of personnel engaged in construction and installation work, in industry, in subsidiary production, in planning operations and scientific research efforts, etc. With respect to accomplishing construction and installation projects, planning and scientific research work, and industrial and subsidiary production, the complexity and technical specifics must be taken into account.

Since the construction and installation associations are a new form of organization for construction management, it is necessary to develop and establish qualifications and indices that group them according to wages of administrators and engineering and technical personnel, also according to their type framework and type work force. These qualifications and indices would facilitate a constant increase in the volume of projects being completed, timely realization of production capacities and fixed capital, a reduction in the prolonged duration of construction work, and the achievement of high-quality final results. In this regard, minimal qualifications should insure the necessary profitability of their operations under the new management conditions.

Coupled with this, in those instances where construction and installation trusts (and organizations on the same footing) are acting as the basic (primary) element of construction management, the interests of consolidating this lower-level element dictate a necessity to review the existing qualifications and indices that group them according to wages of administrators and engineering and technical personnel. It would be advisable to be guided by three considerations in conducting this review--first, qualifications for trusts in groups III and IV should be eliminated; second, only two groups of trusts should be established; third, volume of commodity construction production must act as the qualification.

In developing general models for management of construction production, it would be advisable to prescribe that new basic (primary) management elements be created only if already-functioning analogous elements in the economic or administrative rayon are carrying a full load, and have the first group (according to wages of administrators and engineering and technical personnel).

Introduction of the two- and three-tiered management systems in the building industry by forming construction and installation associations, along with adopting the above-mentioned positive considerations, will allow a considerable decrease in the number of administrative personnel, and an improvement in the ratio of economic administrative personnel engaged in management to those engaged in production; it will also improve the ratio of administrative personnel engaged in construction to workers.

In addition (and this is very important), the production sphere will be reinforced considerably with qualified specialists, due to their efflux from the management apparatus.

All of this, taken in turn, will provide for a decrease in economic administration expenditures--our preliminary calculations show a decrease of approximately 540-600 million rubles a year. This will permit a reduction in their share of the cost overhead in construction for the 11th Five-Year Plan by 18-20 percent.

Eliminating the multi-tiered system in the organizational framework of construction management, eliminating duplication in the operations of construction and installation organizations of the various ministries and departments in the same territorial and economic rayons and administrative centers, consolidating lower-level elements, and increasing the specialization of construction and installation organizations, will play a significant and positive role in increasing the effectiveness of capital investments aimed at developing a production base for the building industry through concentration in production of major enterprises.

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CONSTRUCTION

MAIN CONSTRUCTION JOBS FOR 1981 IDENTIFIED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Jan 81 pp 1-2

[Article by V. Isayev, first deputy chairman of USSR Gosplan: "Put All Startup Facilities into Operation"]

[Text] The Soviet people, on completing the 10th Five-Year Plan, achieved substantial successes in realizing the party's long-term strategy that was defined by the 24th and 25th CPSU congresses. The state plan for economic and social development of the USSR during 1981 is a new step on the road to further growth in the economy of the whole country and of each Soviet republic. Capital investment in the national economy through all financing sources will be 140.2 billion rubles--4.5 percent more than last year's. In so doing, state capital investment will be increased to 124.1 billion rubles, that is, it will grow by 5.2 percent.

The largest construction projects of the most important branches of the national economy that will be introduced into operation in 1981 are shown on the map. What does this tell us?

Capital construction will be performed on a major scale in the industries that most effectively support growth of the people's welfare. This concerns primarily the agricultural industry complex. The CPSU Central Committee's draft for the 26th party congress emphasized the need to strengthen its materials and equipment base for successful realization of the foodstuffs program. For the whole complex of operations in agriculture, capital investment has been set at 37.3 billion rubles for 1981. This is 2 percent more than for last year. The share of expenditures for strengthening the feed base and increasing meat production and for erecting vegetable and potato storage and warehouses for seed and fodder grain is being increased.

More than 700,000 hectares of irrigated land and 770,000 hectares of drained land will be introduced, and about 6 million hectares of pasture will be flooded, through state capital investment.

Complexes for rearing and fattening young steers (10,000 head each) will be turned over to the sovkhozes of Kichuyskiy (Tatar ASSR), Druzhba (Khabarovskiy Kray), Molodaya gvardiya (Krymskaya Oblast), Novo-Rayevskiy (Bashkir ASSR) and Mariupol'skiy (Donetskaya Oblast). New poultry factories will go into operation. Among them will be the Tamarinskaya Poultry Factory in the Georgian SSR, as well as the Sinyavinskiy Poultry Farming Complex in Leningradskaya Oblast, the Podbel'skaya Poultry Factory in Kuybyshevskaya Oblast, and the Cheboksary Poultry Factory. These enterprises will specialize in eggs, as is the case also with those being built in the Tatar and Bashkir ASSR's, Khar'kovskaya Oblast and the Armenian SSR. Poultry factories specializing in meat (4-6 million birds per year) will be introduced in Vladimirskaya, Tul'skaya, Sverdlovskaya and Brestskaya oblasts.

Hothouse farms are being developed. Thus, hothouse combines of 6 hectares each will be turned over in Leningradskaya, Volgogradskaya and Vitebskaya oblasts and Krasnoyarskiy Kray. One in Krasnoyarsk itself will be twice as large, and the Yuzhnyy in Stavropol'skiy Kray will be six times as large.

The erection of a number of large production facilities for the processing branches of the agricultural-industry complex--for vegetables, meat, milk and light industry--will be completed. Among the new enterprises that will produce output and other commodities for consumer consumption, the Zolotukhino Sugar Plant in Kurskaya Oblast, beer breweries in Vladivostok and Simferopol', meat combines in Melitopol' and Ternopol', and enterprises for processing milk in Kazan' and Lipetsk should be named.

Light-industry output in 1981 will grow by 4.3 percent. The production of cotton textiles of the cotton-print, linen and satin groups, wool knitwear articles and carpets will be developed at an outpacing rate. More textiles with improved finish, using chemical fibers, and stylish footwear and other commodities that enjoy high demand with the populace will be manufactured. Accordingly, the industry's capacity will grow at the cotton-spinning factory in the city of Dolina of Ivano-Frankovskaya Oblast, the Tiraspol' Cotton Combine, and the Berdyansk Knitwear Factory.

The October 1980 CPSU Central Committee Plenum paid much attention to building up the capacity of the fuel-and-power complex and to improving its structure. In 1981, 1,335 billion kw-hr of electricity will be generated--3.5 percent more than last year. Support is being given to the development of nuclear-power and water-power stations. It is planned to increase energy generation at these stations by 12 percent. The construction of thermal stations will be expanded, based upon use of the cheap coal of the Ekibastuz and Kansk-Achinsk deposits and the casing-head gas of West Siberia. The erection of specially built superhigh-voltage power-transmission lines to carry energy to the country's central regions will continue. The largest introductions will be at the Ryazanskaya GRES (turbine No 6 of 800,000-kw capacity), Ekibastuz GRES-1 (two turbines of half a million kw each), the Sayano-Shushenskaya GES (the 6th unit), two turbines at the Kursk AES (the second phase), and one each at the Stavropol'skaya, Azerbaijanskaya, Zuyevskaya and Syrdar'inskaya GRES's.

Oil and gas-condensate output will be 610 million tons, coal 738 million tons and natural gas 456 billion cubic meters. The erection of facilities at the new deposits of West Siberia, the Komi and Udmurt ASSR's, Sakhalinskaya Oblast and certain other regions will be speeded up. Gas and oil pipelines, pump and compressor stations, and refineries will be put into operation. Important production facilities will commence operation at the Mozyr' and Polotsk oil refineries.

Oil and gas pipelines of great length are being built to transport oil and gas. Gas will run along the 1,273-km Urengoy-Petrovsk underground arterial, from the North of Tyumenskaya Oblast to Saratovskaya Oblast. The Urengoy-Nadym-Punga-Ukhta-Gryazovets-Torzhok--its structure will be more than 2,000 km long--will be turned over for operation. The Tyumen'-Yurgamysh, Perm'-Al'met'yevsk and Krasnoleninskiy Anticline-Shaim oil pipelines also will go into operation.

Of the larger enterprises for mining and preparing coal, I shall name the Dolzhanskaya-Kapital'naya Underground Mine and its preparation plant--3 million tons of coal will leave here per year.

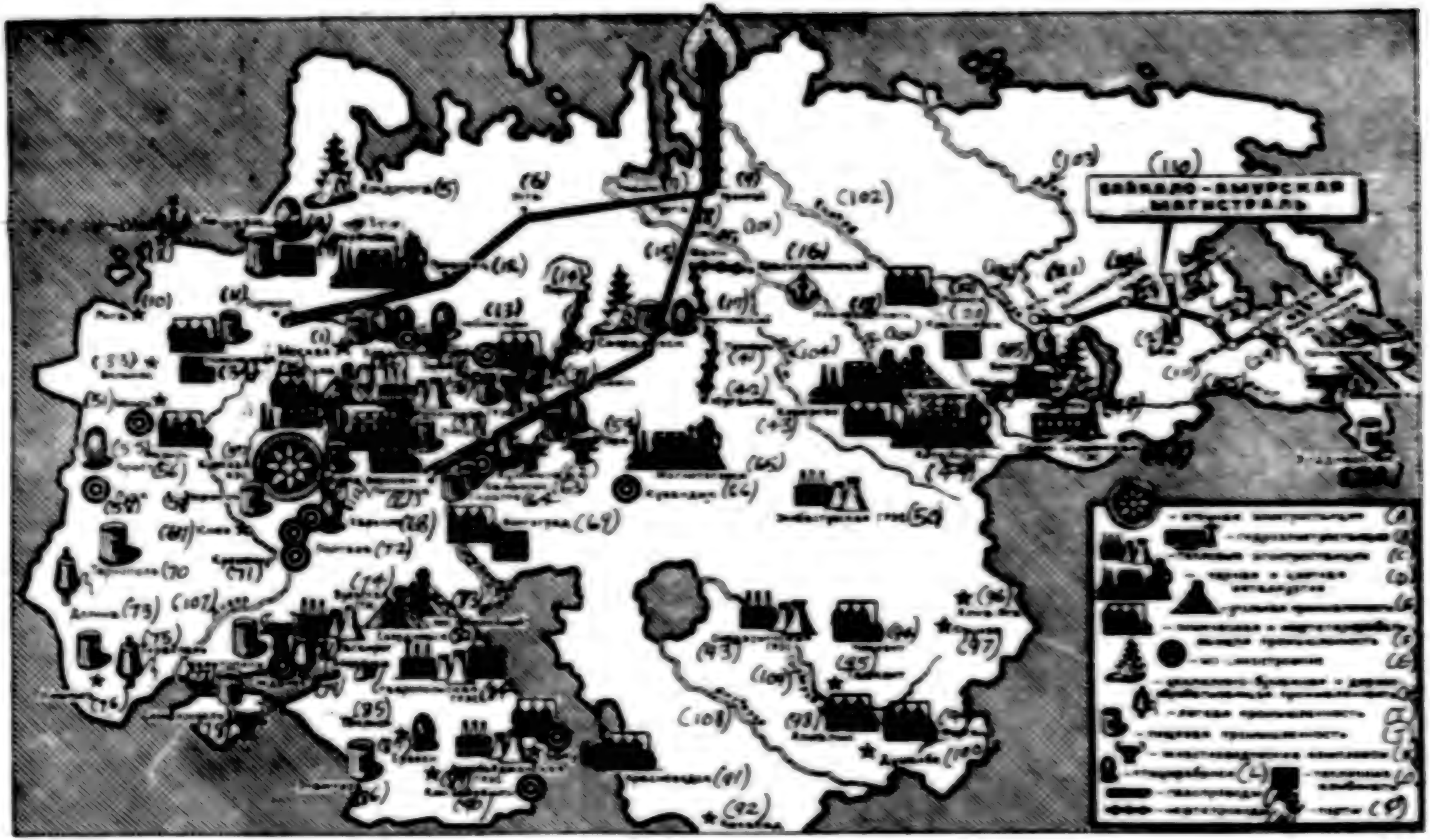
Dynamic and proportional development of the national economy will depend greatly upon the work of ferrous and nonferrous metallurgy. Development of the ore base will be speeded up. Capacity of 2 million tons of ore each will be introduced at the Mikhaylovka Mining and Concentrating Combine in Kurskaya Oblast and at the Sibrud production association in Kemerovskaya Oblast. Oxygen-converter department No 2 and a department for cold rolling carbon steel will begin to operate at full capacity at the Novolipetsk Metallurgical Plant. It is planned to turn coke batteries over for operation at the Magnitogorsk Metallurgical Combine and the Altay Byproduct Coke Plant. In nonferrous metallurgy, capacity for producing aluminum, copper, nickel and other metals will grow.

Outpacing development of the chemical and petrochemical industries is planned for 1981. Output in this branch will grow by 5 percent. Facilities due for startup include those at Kemerovo's Azot association (carbamide production), the Fergana Nitrogenous Fertilizers Plant, the Pridon Chemical Plant (ammonia production) and the Yefremovka and Almalyk chemical plants (sulfuric acid). Capacity for producing polyethylene and ethylene will be introduced in Kazan' at the Orgsintez production association. Motor-vehicle tire production will start at the Chita Rubber and Asbestos Combine.

In the lumber, wood-processing and pulp-and-paper industries, the amount of logging will increase, and the output of particleboard, fiberboard, pasteboard, paper and industrial chip will grow at an overwhelming pace.

The plan contemplates growth in the production of building materials needed for capital construction, the repair of fixed capital and other needs. In 1981 the output of cement will reach 128.5 million tons, building glass more than 285 million m^2, and asbestos-cement roofing shingles more than 8 billion standard-equivalent units. It is important that the manufacture of progressive types of output and of lightweight thermal insulation layers, the importance of which was especially emphasized in the CPSU Central Committee's draft, be increased. At the Kstovo plant, capacity for producing 50,000 m^3 of mineral-wool sheet will be introduced. The Khabarovsk Silicate Wall-Materials Plant will produce brick on the newest equipment. At the Panevezhis Glass Plant (Lithuanian SSR), a production facility for 4.5 million m^2 of fiberglass mat is being established.

Machinebuilding will play a key role in the reequipping of all branches of the national economy with machinery and in raising social production effectiveness. Output of machinebuilding and metalworking will increased in 1981 by 6.1 percent. Capacity will increase at the Khar'kov Turbine Plant, the Gor'kiy Milling-Machine Plant, the Kuvandyk Mechanical Press Plant (Orenburgskaya Oblast) and the Taganrog Forging and Pressworking Equipment Plant. The Zhdanov Heavy Machine-Building Plant and the Kryvkov Railroad Car Building Plant are being developed. Kuybyshevburmash [Kuybyshev Drilling Machinery Association] and the Bakinsky Rabochiy Plant will increase capacity for the production of oilfield and drilling equipment.



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Key:

1. Moscow.
2. Tallinn.
3. Leningrad.
4. Cherepovets.
5. Kondopoga.
6. Ukhta.
7. Nadym.
8. Punga.
9. Urengoy.
10. Riga.
11. Torzhok.
12. Gryazovets.
13. Cheboksary.
14. Perm'.
15. Shaim.
16. Krasnoleninskiy.
17. Reftinskiy.
18. Nizhnevartovsk.
19. Achinsk.
20. Krasnoyarsk.
21. Ust'-Kut.
22. Nizhneangarsk.
23. Chara.
24. Berkakit.
25. Tynda.
26. Nora.
27. BAM.
28. Berezovka.
29. Komsomol'sk-na-Amur.
30. Yuzhno-Sakhalinsk.
31. Khabarovsk.
32. Vladivostok.
33. Vilnius.
34. Novopolotsk.
35. Tula.
36. Vladimir.
37. Gor'kiy.
38. Kazan'.
39. Al'met'yevsk.
40. Sverdlovsk.
41. Tyumen'.
42. Yurgamysh.
43. Kemerovo.
44. Kiselevsk.
45. Bratsk.
46. Abakan.
47. Irkutsk.
48. Sayano-Shushenskaya GES.
49. Altayskiy.
50. Ekibastuzskaya GRES's.
51. Minsk.
52. Ryazanskaya GRES.
53. Lipetsk.
54. Ufa.
55. Mozyr'.
56. Brest.
57. Kurskaya AES.
58. Lutsk.
59. Chernigov.
60. Kursk.
61. Petrovsk.
62. Kuybyshev.
63. Balakovo.
64. Saratov.
65. Magnitogorsk.
66. Kuvandyk.
67. Kiev.
68. Khar'kov.
69. Volgograd.
70. Ternopol'.
71. Kremenchug.
72. Poltava.
73. Dolina.
74. Zuyevskaya GRES.
75. Tiraspol'.
76. Kishinev.
77. Melitopol'.
78. Simferopol'.
79. Zhdanov.
80. Berdyansk.
81. Taganrog.
82. Sverdlovsk.
83. Yubileynyy Settlement.
84. Stavropol'skaya GRES.
85. Tbilisi.
86. Ochamchira.
87. Yerevan.
88. Baku.
89. Azerbaijanskaya GRES.
90. Ali-Bayramli.
91. Krasnovodsk.
92. Ashkhabad.
93. Syrdar'inskaya GRES.
94. Chimkent.
95. Tashkent.
96. Alma-Ata.
97. Frunze.
98. Almalyk.
99. Fergana.
100. Dushanbe.
101. Ob'.
102. Yenisey.
103. Lena.
104. Irtysh.
105. Amur.
106. Angara.
107. Dnepr.
108. Amudar'ya.
109. Syrdar'ya.
110. Baykal-Amur Mainline.
111. Urgal.
112. Voronezh.

A. Nuclear electric-power station.
B. Hydroelectric power station.
C. Thermal electric power station.
D. Ferrous and nonferrous metallurgy.
E. Coal industry.
F. Chemical and petroleum-refining industry.
G. Machinebuilding.
H. Pulp-and-paper and wood-processing industries.
I. Light industry.
J. Food industry.
K. Livestock complexes.
L. Poultry factories.
M. Gas pipelines.
N. Oil pipelines.
O. Hothouse combines.
P. Ports.

The materials and equipment base for transport, mainly for rail transport, is to be further increased. To be introduced into operation are 760 km of new lines, 860 km of second track, a thousand km will be electrified, and more than twice that much will be equipped with automatic blocking and centralized control. New railroad line will be built on the Ust'-Kut-Kunerma section of the BAM [Baykal-Amur Mainline] and the Novosergiyevskaya (Pogromnoye)-Pugachevsk section will be built. It is planned to build 21,000 km of new highways and to continue to develop technical servicing stations, motels and public eating enterprises.

As before, great attention is being paid to housing construction. It is planned to erect 108.9 million m^2 of total area--somewhat more than in 1980--through all financing sources. This will enable housing conditions to be improved for more than 10 million people.

A most important feature of the year's construction program is the trend toward investing capital mainly in the reconstruction and technical reequipping of enterprises and in the completion of previously started construction projects.

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CONSTRUCTION

ACHIEVEMENTS NOTED IN TASSR RURAL CONSTRUCTION

Dushanbe SEL'SKOYE KHOZYAYSTVO TADZHIKISTANA in Russian No 12, Dec 80 p 15

[Article by V. D. Ablogin, first deputy minister for rural construction, TaSSR: "The Vakhshvodstroy Initiative--In Operation"]

[Text] As did all the Soviet people, rural builders in the Tajik SSR heartily welcomed and approved the decisions of the October 1980 CC CPSU Plenum, Comrade L. I. Brezhnev's speech at the plenum, and the decisions of the Fourth Session, Tenth Convocation of the USSR Supreme Soviet. Every Soviet citizen has a heartfelt sense of justifiable pride in the tremendous successes achieved by the country during the years of the 10th Five-Year Plan and the plans outlined in the CC CPSU draft to the 26th Party Congress, "Basic Trends in Economic and Social Development of the USSR over 1981-1985 and the Period Prior to 1990."

The plenum devoted a great deal of attention to development of the country's agriculture. With Leninist straightforwardness and precision, the speech of Comrade L. I. Brezhnev, General Secretary of our party's Central Committee stresses that improvement in supplying food products is the major factor on which the Soviet people's standard of living depends. This situation makes those who toil on the farm and raise livestock front-line fighters in the struggle to find solutions to the fundamental problems facing the country's economy.

Rural builders, of course, do not directly produce food products and raw materials for industry; nevertheless, the fate of agricultural production plans and commitments depends to a great degree on their activities. Construction organizations and industrial enterprises of the Ministry of Rural Construction are active participants in the social and economic processes of the village--specialization and concentration of production, mechanization and automation of labor, establishment of living conditions approximating those of the city. These are inconceivable without rural construction.

Comrade L. I. Brezhnev stated it perfectly in his speech at the plenum: "Effective realization of our agricultural potential is most directly related to solving the social problems of the village. A great deal has been accomplished here, but still more remains to be done. Many rayons lack comfortable living quarters, cultural facilities, everyday personal services, good roads. This causes difficulty in forming stable labor collectives, a fact which leads to great losses. Problems of rebuilding the village must be solved energetically and fundamentally, seeking out the necessary resources for this on the national level as well as in the republics, krays and oblasts, in every kolkhoz and sovkhoz."

Rural builders of the TaSSR are handling their assigned mission with a great sense of responsibility. There isn't a single rayon in the republic, not a single kishlak [village] where they haven't left their mark. Applying industrial work methods on an ever wider scale, spreading socialist competition, supporting patriotic initiatives that have arisen from their own construction projects, rural builders are constantly striving to achieve steady growth in production indices.

I will recount some recent events as corroboration. During the first half of this year, the progressive-minded teams PMK-1 and PMK-2 mobile mechanized column of the "Vakhshvodstroy" [Vakhsh River construction] Trust introduced an initiative that provided for ahead-of-schedule completion of construction projects underway. The patriotic innovation, approved by the CC CP TaSSR quickly gathered a following in many of the republic's rural construction sites.

Among the first to respond to the teams' initiative were N. Davlyatov and P. Abdurakhimov of PMK-24, "Kulyaboblsel'stroy" Trust working on construction of a fattening station for large horned cattle at the agro-industrial association "Khovaling." As a result, instead of the 6400 spaces for cattle planned for 1980, the station capacity had already reached 1200 spaces.

The team of T. Sanginov, of the Ordzhonikidzeabadskaya inter-farm PMK, "Sel'stroy-1" Trust completed ahead of schedule a station for 600 head of large horned cattle for the "22nd Party Congress" kolkhoz of Ordzhonikidzeabadskiy Rayon. In the same PMK, S. Safarov's team constructed a station for housing 2000 head of livestock for the Ordzhonikidzeabadskoye sheep association "Moscow", also ahead of schedule.

A station for 200 head of large horned cattle was put into early operation at the inter-farm association imeni Tel'man, Leninskiy Rayon, thanks to the efforts of the builders of the inter-farm PMK, Leninskiy Rayon, of "Sel'stroy-1" Trust.

The following projects should be added to the list of those completed ahead of schedule thanks to active support of the "Vakhshvodstroy" initiative: the mineral fertilizer warehouse in "Ravat" sovkhoz, Kanibadamskiy Rayon; a 320-desk school; a poultry facility for 26,800 laying hens in "Azerbaydzhan" kolkhoz, Kuybyshevskiy Rayon, etc.

These successes did not come about by themselves, but are rather the result of collective efforts in the industrialization of construction. Characteristic of this process is the increase in the role of completely prefabricabricated construction, where the basic structure is manufactured at a plant, and only its installation takes place at the construction site. Today, prefabricated construction accounts for more than 40 percent of the total; in other words we get almost half of our construction projects from structures that have been manufactured at plants.

Industrialization of construction is accompanied by a fundamental reorganization of management methods, by improvement in the use of technical construction equipment and machinery, small-scale mechanization, and by an increase in the level of political and organizational work with the masses.

Implementation of the most worthwhile innovations by construction and installation collectives has a great effect on the work of builders. Within the ministry framework, 220 teams are working by the team-contract method. Here is a remarkable indicator: output of the teams that work on a cost-accounting basis was 19.7 percent greater than that of the regular teams. Progressive forms of work remuneration are being introduced; moral and material responsibility for timely project completion is being intensified.

It is felt that, with the beginning of the year and of the whole five-year plan at hand, a reader of this publication might be interested in knowing a few of the final figures with respect to Tajik rural construction.

Over the 10th Five-Year Plan, 440 construction projects were put into operation by our builders. These include modern agricultural-industrial complexes for fattening large horned cattle, complexes for pork, milk and egg produce, large hothouse combines, warehouses and storehouses, mechanized enterprises for repair of agricultural equipment.

Housing totalling 493,413 square meters has been constructed for village workers since the start of the five-year plan. New schools have been built for village school children that provide more than 76,500 spaces. The number of available spaces in pre-school institutions has increased by almost 6000. Considerably more has been done to broaden our system of technical trade institutions--from 1976 through 1980 such construction provided for six times the number of spaces created by the previous five-year plan.

Village workers received new hospitals, clubs, bathhouses, combines that provide everyday personal services. The water supply for many rural settlements was improved.

All of this has permitted an improvement in housing and everyday living conditions for many thousands of village families, and for the rural builders themselves. Finally, it has promoted an increase in agricultural output.

As is well known, any construction project today begins with a plan. I consider it necessary, therefore, to comment, however briefly, on the operation of the Tajik Kolkhoz Planning Institute. Its collective has drafted the plans for such major industrial enterprises as the inter-farm complex for fattening 4500 head of cattle in Gissarskiy Rayon, the 2000-netel' [female calves that have not given birth] complex in Leninskiy Rayon, the station for 800 head of large horned cattle in "Kommunizm" kolkhoz, Leninskiy Rayon, the Gissarskiy pig sovkhoz, the inter-farm enterprise for cattle-fattening in kolkhoz imeni Lenin, Voseyskiy Rayon, etc.

In planning rural industrial structures, decisions made with regard to construction design permit stowing various kinds of products in them, and establishing the parameters required by the norms that will provide optimal conditions for maintaining cattle, even with the limited nomenclature of scale models, and the relatively small quantity of industrial products.

Designs of hothouse complexes have been drafted, and of an experimental ground-level lemon nursery that is highly mechanized, and where automation is used in production processing.

To sum up their efforts over the years of the 10th Five-Year Plan, rural builders of the Tajik SSR have been checking their activities against the tasks assigned by the October 1980 CC CPSU Plenum, and against the provisions and instructions stated by General Secretary of the Central Committee of our party Comrade L. I. Brezhnev in his speech at the plenum. While rejoicing in our successes, we are concentrating all our attention on unsolved problems. We still have many construction organizations and enterprises that have lagged behind for quite some time, where a fundamental evaluztion has not been prompted by the facts of lost productive labor time, failure to keep up with project completion schedules, failure to fulfill responsibilities.

The party is calling for efforts to intensify supervision and verification of work acconplishment. This is quite a serious matter. Organization is particularly necessary today.

In all of our work, we must adhere to the party principles of economic construction. "We must resolutely tighten up capital construction," Comrade L. I. Brezhnev pointed out during festivities in Alma-Ata. "We are accomplishing a great deal of construction, but, unfortunately, resources often get scattered. It sometimes happens that builders just cannot do all of it. It is necessary to balance potential with desire, to concentrate maximum resources along the major sectors. Let it be a rule that we accomplish construction quickly, economically, and on a modern technological level--more to the point--on the level of tomorrow's demands. This applies to rural industry also."

Our builders have assumed great obligations in honor of the 26th Party Congress, the most important of which is early completion of a number of village projects. A little less than two months remains until the opening of our principal party forum. In order to make a valuable contribution, we must exercise special supervision over fulfillment of tasks and obligations with respect to completion of projects underway. The necessary conditions for highly productive labor have been established at our construction sites. Organization and a precise project rhythm has been provided at construction plots. This permits uncovering additional reserves for production growth, improving the utilization of production capacities and material resources. Giving the green light to the Vakhshvodstroy initiative providing for early completion of projects will establish the conditions for a successful labor effort from the very first days of the 11th Five-Year Plan.

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CONSTRUCTION

CAPITAL CONSTRUCTION PROGNOSTIC FOR AZSSR, 1981-1985

Baku VYSHKA in Russian 21 Dec 80 p 3

[Article, author unspecified: "Capital Construction: A New Program, New Production Capacities"]

[Text] The Soviet Union is indeed the land of new construction projects. Capital investments from all financial sources into the national economy will grow by 12-15 percent over five years. Labor productivity will increase by 15-17 percent.

Major efforts in the new five-year plan will be directed towards enhancing the effectiveness of capital investments. Guided by the CC CPSU and USSR Council of Ministers resolution on improving the economic mechanism, contracting ministries and departments and all their subunits must pay basic attention to insuring the timely actualization of fixed capital and production capacities. A significant portion of manpower and material-technical resources must be applied toward modernization and technological reequipping of existing enterprises, for completion of projects already begun, to reduce the time spent on construction and improve the planning process. Such tactics are dictated by the necessity to expedite the yield, first of all from those industries that are still in operation, then from those production capacities in which 10th five-year plan funds are invested.

Azerbaijan is faced with considerable tasks in reaching capital construction targets for 1981. Investment volume amounts to 1.8 billion rubles, 12 percent greater than this year's volume. Renovation, expansion and modernization of existing plants, factories and combines accounts for 1.5 billion. Progressive changes are programmed with respect to sector allocation of capital investments. Appropriations for petroleum engineering, instrument building, electrical engineering, chemical and petro-chemical industries will increase by 30-40 percent. Introduction of fixed capital will exceed 1.7 billion rubles--22 percent greater than what was put into operation this year.

Efforts and resources are basically being concentrated on effecting realization of such important projects as the first blocks of the Azerbaydzhanskaya State Regional Electric Power Station, the Shamkhorskaya State Electric Power Station, production capacities of the plant imeni Lieutenant Schmidt, the "Baku Worker" plant, the plant imeni P. Montin, the Kishlinskiy machine building plant, the Baku electronic machine building plant imeni 50th Anniversary of the Republic's KOMSOMOL, the linen-drapery and knits factory in Nakhichevan', the bread-baking plant in Kirovabad, etc.

Successful fulfillment of the construction program requires further improvement in production management, reduction in the amount of manual labor, better activity coordination among clients, planners and contracting collectives. Builders have their methods, proven through experience, for increasing efficiency in their trade--introducing the work-crew contracting method on a widespread basis, intensifying lower-level planning, organizing comprehensive competition based on the "working relay-race" principle, etc.

The task of contracting collectives is to successfully fulfill the 10th five-year plan and make a good start on 1981.

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CONSTRUCTION

IMPROVING LIVING CONDITIONS FOR WORKERS IN WESTERN SIBERIA

Moscow STROITEL'NAYA GAZETA in Russian 25 Jan 81 p 2

[Article by A. Vesel'yev, deputy minister of Construction for Gas and Petroleum Industry Enterprises: "Speeding Things Up in Siberia: Everything a Person Needs"]

> [Text] "To provide for the further development of a vast territorial production complex in northwestern Siberia...to consolidate the construction base, to augment house-building construction, social, cultural and road construction." (from the draft "Basic Directions")
>
> The author proposes speeding up efforts to complete the special program for development of the Western Siberia Gas and Petroleum Complex, which specifies, among other things, such important matters for builders as establishing a solid base for house-building, increasing production of mobile dwellings with enhanced comfort.

Efforts to exploit the storerooms hidden in the earth of western Siberia have been underway for two decades already. The country's major fuel and power engineering base has been established here over these years. Right this minute that is where the national economy is getting every other ton of oil and every third cubic meter of natural gas. Builders are making a valuable contribution to this region's development--establishing the construction trade everywhere, building new roads. Vast infrastructures have been formed in the Tyumen' area, providing vital activity for collectives of construction organizations of various ministries. But do the builders in this new region live comfortably?

In Tyumen' oblast alone over the past decade more than 10 million square meters of comfortable living space has been created, a significant portion of which is the work of organizations of the Gas and Petroleum Ministry. We've seen our own mobile, social infrastructure take shape--"watch" settlements [vakhtovyy], field towns for builders.

Today over 40 thousand people are living in field towns; they have almost 12 thousand van-homes. The majority of these field towns (of which there are 250--located along the construction of new main pipelines in western Siberia) have central heating, water supply, showers and baths, recreation and reading rooms, libraries, sports areas.

Nonetheless, in spite of the fact that a great deal of work has been accomplished in recent years, sector builders cannot be satisfied with current living standards. Suffice it to say that provision of lodging in the gas and petroleum rayons is still 40-50 percent of what it is for the country as a whole. Thousands of families occupy temporary dwellings. Investigations have shown that the level of everyday repairs and other services in the field towns, cultural facilities, rest and recreation conditions, are still not satisfactory for the builder. At times the quality of mobile dwellings too (van-houses and other in-inventory buildings) fails to meet modern requirements.

We can observe the deficiencies quite clearly, and intend to apply our efforts in the following areas. Firstly--in improving and developing expeditionary "watch" construction, in introducing new types of van-houses and collapsible buildings, in improving the quality of our builders' mobile dwellings, in applying architectural planning to the field towns. Without this it will be difficult to accomplish the major tasks assigned by the CC CPSU draft to the 26th party congress on development of the gas and petroleum complex.

As one of the leading construction organizations in the region, the Ministry of Gas and Petroleum Construction, jointly with other involved organizations, is faced with the annual task of creating 1200-1300 thousand square meters of living space for new settlers in the Tyumen' north. Thus, building comfortable living quarters for laborers in Tyumenskiy Kray is becoming one of our major jobs. A large, specialized subunit, the production association "Sibzhilstroy," was established in Tyumen'. The industrial base for house-building is being broadened, several combines and plants are undergoing modernization, new production capacities are being built. In Urengoy and other cities along the northern Ob' River, new trusts are being established for erecting projects for living quarters and everyday social and cultural facilities.

As early as 1980-1983 the need is foreseen to bring lodging facilities in to western Siberia at an annual rate three times that of 1979. All ministries have programmed efforts to construct over a four-year span more than 7,200,000 square meters of living space, schools for 41,500 pupils, preschool institutions for 31,800 children, hospitals comprising 4200 beds, many other cultural facilities for everyday living.

Calculations show that by 1985 the number of workers in the western Siberia gas and petroleum region will increase to twice the 1978 level; the outlook for the population as a whole indicates it will reach two million. In order to relocate such a large population, housing will have to be constructed comprising a total area of 23-25 million square meters. As difficult as this task is, it must be accomplished. A great deal has already been achieved, but there's more to be done in fulfilling the 11th five-year plan. A program of social sector development in the new five-year plan is currently being worked out based on the task of sequentially developing the main activity region for western Siberia construction organizations.

However, there are a number of problems that go beyond the framework of the sector. First of all, the difficulty of building cities in the north out of traditional materials is quite clear. Buildings are required that can be assembled using light construction design, that can be manufactured in plants using modern technology.

We believe that house-building plants where the foundations are already laid must be put into operation during the new five-year plan, and new ones must be erected in order to fully meet the country's demand for mobile housing in the cities, for "watch" settlements and field towns. Production of mobile dwellings and van-houses with greater comfort must be increased. These matters must be resolved first of all at Gosplan USSR level.

The problem of transportation in western Siberia requires particular attention. River transport workers are not coping well with cargo shipments for the builders. Little is being done still to develop the road network for motor vehicles. Air transport needs to be developed too. We hope that the special program for development of the western Siberia Gas and Petroleum Complex will provide a solution to these problems.

Issue of technical equipment for northern use presents a particularly significant social problem. Economic losses caused by using ordinary technical equipment in Siberia number in the billions. Equally important is the need to improve labor conditions for workers in these regions. For example, we are still awaiting the issue of "watch" motor vehicles for personnel transport along temporary northern roads.

Assistance from the State Committee for Universal Labor Service is also required to put the state's house completely in order with respect to applying the expeditionary "watch" method. There is an economic contradiction in that an exceedingly great effect is seen in those sectors that are consumers of construction production, but additional expenditures for transport and rotating shifts of workers, improvement of everyday social conditions, and solving the diverse problems that come up along the way fall upon the shoulders of the contracting organizations. The time has come to provide a fundamental solution to this problem.

It is also necessary--with assistance from Gosstroy USSR--to develop project planning norms and standard plans for field towns, to establish firm sanitary and hygienic standards for their operation in the established order. If the comfort level of temporary settlements for builders becomes regulated by standards, it will be controllable. This will prove to be a powerful instrument in substantially improving everyday life for expeditionary builders in regions where the riches of western Siberia are being exploited.

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CONSTRUCTION

DEFICIENCIES NOTED IN CONSTRUCTION OF LITHUANIAN OIL REFINERY

Vilnius SOVETSKAYA LITVA in Russian 16 Dec 80 p 2

[Article by Ya. Rivkin, chief project engineer, "Orgtekhstroy" Trust: "Finish? Yes, But Just an Intermediate One: The Mazheykskiy Oil Refinery"]

> [Text] New, complicated tasks demand a reliable consolidation of what has been achieved, and an effective solution to a number of problems that have crystalized during construction of the first section of the enterprise.

And so the first section of the Mazheykskiy oil refinery has assumed its position alongside the country's operational enterprises. Leonid Il'ich Brezhnev, CC CPSU General Secretary, Chairman of the Presidium of the USSR Supreme Soviet, congratulated builders, assembly, operation and maintenance personnel on their great labor victory. An important stage of the job is behind us, a fact which has permitted creation of a new industrial sector for Lithuania, in open country (so to speak), far removed from major construction bases. Behind us are enormous efforts to achieve harmonious operation in dozens of powerful subunits, efforts to organize the labor, and everyday living conditions of many thousands of production workers. We've seen a finish--but it is an intermediate finish only. New, complicated tasks lie ahead--tasks that can and must be fulfilled better and more efficiently than during construction of the first section of the enterprise. To do this we must consolidate what has been achieved; we must get deeply involved in solving a number of urgent problems.

First of all I would like to turn to an analysis of the management scheme for the [illegible]ef construction project in our republic. This scheme took shape with difficulty, with mistakes and miscalculations; so it would be all the more a shame to lose anything from the experience that has been accumulated. This experience can actually be greatly useful to other major construction projects in the republic as well.

Towards the beginning of 1979, a decisive time in construction of the refinery, the situation in Mazheykyay was getting exceedingly complex. Tasks that lay ahead included doubling the average daily work pace, concentrating great manpower and material resources for the project in short time periods, arranging food and accommodation for hundreds of new workers, transporting them to the main industrial site, effecting coordination of operations involving subunits belonging to various departments. The Lithuanian Ministry of Construction is forming an operational staff headed by Deputy Minister A. Shestakauskas, and is enlisting the services of eight of its general contracting organizations (responsible for 1,783,000 rubles of production over the year) in building a number of general plant construction projects. The republic's construction project staff, formerly headed by A. Brazauskas, secretary of the Central Committee of the Communist Party of Lithuania, directed its efforts towards solving current problems, and obtaining additional manpower and material-technical resources, towards overcoming departmental disunity. The trust-level party committee brought together communists from all subunits participating in the projects, and united them as a single family.

In order to manage construction of such a huge complex as the Mazheykskiy oil refinery, a schematic model was developed that takes into account the project's particular technological features. It comprised 39 systems to be put into operation, 36 of which related to the first section of construction. Each system encompassed a complex of structures providing for normal operation of basic technological assemblies. This approach to organization of management prevented a single technical network from being overlooked, something that still occurs frequently with all the complicated intermeshing of jobs and projects.

The model divided the refinery complex into two large sub-complexes. The first comprised cleaning and purification structures, the second--basic technological assembly and general plant construction projects. They in turn were subdivided into micro-complexes encompassing one or several systems undergoing construction. Each director bore responsibility for coordinating the work of all organizations participating in the construction of his micro-complex. Primary attention was devoted to building systems that provide power and heat supply, and to those jobs where it was necessary to pave the way for the operation of subcontracting organizations. Management of the micro-complex was accomplished with participation of the client's representatives and those of the installation organizations. This permitted achieving a great deal on the line-personnel level. Actually I cannot say this without reservation. It did work, but not very often due to mismanagement on the part of certain micro-complex directors, foremen and section chiefs--and then the construction project staff had to get involved in solving petty problems.

Construction progress was examined every day. Also, the staff used working conferences to analyze such important matters as completing management schedules and work charts, giving work accessibility to subcontracting organizations, organizing full complements of technical equipment, metalwork, tubing and piping, concentrating transport and machinery, performing start-up and adjustment work, organizing working sub-commissions on completed assemblies and projects, etc. For the first time in this republic an automated system of providing information to management (ASPIM) was tried out on an experimental basis in conjunction with construction on the Mazheykskiy oil refinery. The system was developed by the "Organization of Power Engineering Construction" of the USSR Ministry of Power Engineering. It is felt that future use of computers, based on ASPIM, for management of complexes undergoing construction will enable management to better monitor labor progress and make timely decisions.

Project organization by subunits of the Order of Lenin Union Trust #7 is especially interesting. In 1977-1978, their work encompassed an annual 1.5-1.6 million rubles; in 1979--6.696 million rubles. Growth by a factor of 4.2 was possible thanks as much to enlisting additional efforts for the job as to applying large-block installation, using heavy-installation cranes with disjoinable booms (which prevented movement of the mast frontally along the project); there was also widespread use of stock-produced assemblies, and lashes of piping and tubing manufactured in naturally-cut sizes, etc. Many projects accomplished by Trust #7 were the first such projects to be completed on construction sites in Lithuania. To illustrate, we can cite installation of an apparatus with a weight of over 400 tons; roll assembly of large-volume cylindrical reservoirs; installation of spherical reservoirs with assembly and welding from separate lobes, right where the work is being done without using a positioner.

I would like now to mention certain mistakes and miscalculations committed by clients, builders and installers while constructing the first section of the refinery--so as not to repeat them in the future, during construction of the second section and other major projects.

The client was unable to distribute annual work volume precisely for construction and installation jobs, nor to take on the right number of annual projects for systems under construction. This brought about an allocation of resources that did not correspond with the tasks necessary to put the enterprise into operation. The required correspondence between complexes underway and the production engineering process was not worked out in timely fashion, according to individual production capacities. A construction job that was lagging behind schedule received its locking fixture complement; this slowed down the pace at which piping assemblies were being manufactured, and the time required for delivery of basic technical equipment turned out excessively prolonged.

As early as the initial phase the construction planning institute should have provided the builders with a schematic showing all roads in the refinery area, and indicating places where they intersect with engineer communications. This would provide for a better-prepared construction site, especially in the fall and winter periods, and for more productive use of technical equipment. Engineering preparation for construction accomplished by the Mazheykskiy Trust also left much to be desired.

No major facilities were built to provide normal accommodations, with all the sanitary and other everyday services, for workers at the construction site. Also missing was a central dispatch point with loading and unloading platforms and equipped with stationary tower crane. Expenditures for the vehicular transportation of workers turned out to be exceedingly high, although proper prior planning could have foreseen and provided for their transport from Mazheykyay to the project site by a railroad branch-line.

It is felt that today is none too soon to be drawing appropriate conclusions from the blunders and omissions that have been thoroughly analyzed, in order that construction of the second section of the refinery will move along in more organized and efficient fashion than did the first. Powerful collectives of builders, installers and operators have been formed in Mazheykyay. They are capable of handling their new tasks honorably, and of marking the occasion of the 11th five-year plan with intensive, high-quality labor--guaranteed by their modern engineering training.

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CONSTRUCTION

CHANGES IN ORGANIZING BUILDING-MATERIALS PRODUCTION URGED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 11 Dec 80 p 2

[Article by Yu. Vinogradov, deputy chief of a division of USSR Gosstroy: "The Construction Base"; passages enclosed in slantlines printed in boldface]

[Text] About 25,000 enterprises, where several million people are employed, have several billions of rubles' worth of fixed production capital at their disposal--this is the might today of the industry of the contracting ministries and of the building materials industry. /This potential that has been created is completely adequate for bringing to completion the broad construction program planned by the CPSU Central Committee's draft for the 26th party congress./

We know at the same time that a shortage of new and effective products, structure and materials, and even of traditional ones, is a most frequent cause of idle time at construction projects.

What is the matter?

Of the 25,000 above-mentioned enterprises only 4,500 of them are on an independent balance sheet. They produce 80-85 percent of the output. Thus, the overwhelming majority of the producers of materials and structure are small, low-profit activities, the existence of which is itself in contradiction with the policy to concentrate production facilities.

What gave birth to this anomaly? Let us take, for example, the quarrying industry. More than 7,000 crushing and grading plants and quarries are subordinate to 60 ministries and agencies. Product distribution is not centralized. There is no full balance of production and demand. The same is true for the general scheme of siting and further developing the enterprises. A unified engineering policy at the proper level is not being carried out.

And what does this mean for the builders? Supplying facilities with crushed rock has become a severe problem. In the plan for interoblast shipments of crushed rock and gravel in the RSFSR alone, irrational counterhauling each year reaches about 10 billion ton-km, and about 17,000 railroad cars are engaged in this daily. At the same time, a selective check of 600 large quarries in the RSFSR indicated that half of them are operating from 5 to 12 shifts per week with only a 50-percent load on the equipment and mechanisms. The shortage in many rayons is, in the full sense of the word, artificial. It is caused primarily by deficiencies in the system of planning for the development of capacity and for the production of quarried materials, and also by a bureaucratic approach in the solution of this question.

Matters in the brick industry also go unfavorably. In the past 10 years about 2 billion rubles have been invested in it. But since 1975, instead of raising yield, a drop in the output of clay brick has started and it is continuing at the rate of a billion bricks per year. The cause is a lack of coordination of the actions of USSR Minstroymaterialov [Ministry of Construction Materials Industry] and Minstroydormash [Ministry of Construction, Road and Municipal Machine Building] with respect to technical progress in this subbranch. New, modern equipment is created extremely slowly, and it is being assimilated and introduced into production still more slowly. As a result, most enterprises are operating under an obsolete technology, with an enormous proportion (up to three fourths) of manual labor.

In the prefabrication of concrete and reinforced-concrete constructional structure, which is most important for the construction industry, capacity for 55 million m^3 of articles (an increment of 60 percent) has been introduced in the last decade. The engineering level of the production facilities also has been raised. Much of it was done well. But this is on the whole. Sometimes this is what we see. In West Siberia, reinforced-concrete articles have to be delivered to the BAM [Baykal-Amur Mainline] from all parts of the country. And in some regions excess capacity has been created: in Donetsko-Pridneprovskiy--1.3 million m^3, in the Central Economic Region 1.2 million m^3, and in the Urals Economic Region 0.9 million m^3. Why? Just because development went on without a proper planned start. As many as 30 ministries and agencies are doing construction and repair work, together with basic contracting organizations, in the republics, krays and oblasts, and each strives to provide itself independently with prefabricated reinforced concrete.

It stands to reason that such disorderliness in forming the materials and equipment base for construction is not new. Practical steps toward intensifying the role of centralized planning in this area have been undertaken. In particular, the compilation of a unified scheme by region for the development and siting of the construction industry is now obligatory. And the development of such documents is being accomplished. The trouble, however, is in the fact that these schemes (except for Belorussia and some other regions) have not become preplan documents.

/Realization of some of the main statements of the draft of the "Main Directions"--about the concentration of capital investment and of material resources at the most important construction projects, a restriction on the number of facilities being erected simultaneously, and, in the given case, in the sphere of the construction industry and the building materials industry--is seen as a way out of this situation. It would be proper to raise the standing of regional master plans when converting to the next stage of organization./

It is completely realistic to compile a unified master plan for the country in 1981. USSR Gosstroy, together with the main contracting and other ministries that are doing construction and installing work, and with the participation of local soviets, could plan which construction industry enterprises to develop and where they should be developed. And USSR Minstroymaterialov, together with the republic councils of ministers, should do the same for building-materials industry enterprises. The Union Gosplan and Gosstroy should approve such developments prior to 1990 as the main preplanning document.

But this measure will scarcely be effective if it is not strengthened, as they say, with a rear and with flanks. /In continuing to raise the role of planning as a central element in the control of the national economy (and this task was especially emphasized in the CPSU Central Committee's draft), recommendations that many construction organizers are introducing in this respect should be reviewed and adopted./ What do these recommendations boil down to?

Right now, as is known, enterprises with a budget-estimated cost of less than 3 million rubles (and it is precisely these on which, mainly, the modern materials and equipment base for construction is founded) are erected by the ministries without coordination with USSR Gosplan. Obviously, this procedure must be changed. Lists of new construction projects and of facilities to be rebuilt or expanded should, regardless of cost, be approved, with obligatory coordination with planning and construction committees. When developing drafts of government decrees about the erection of large capacity, development of the construction base must be specified 2-3 years ahead of time.

The need to strengthen the role of centralized planning in the productive activity of construction-industry enterprises also is evident. Until now two systems of planning for them--the construction balance sheet and the industrial balance sheet--have been operating interchangeably. In the first case the enterprises, including housing-construction plants, are working only on the requirements of "their own" organizations. Even when they have free capacity, they take outside orders extremely reluctantly. Equipment utilization and labor productivity at such enterprises are 10-12 percent lower than for those on the industrial balance sheet, that is, those which realize their output by the ordinary procedure--under contracts. This must be examined as one of the reserves.

Another reserve is concealed in the fact that the provisioning of production facilities with metal, cement and other materials is not centrally planned today. To order reinforced-concrete articles, they ask you to supply the materials for them. This so-called customer-supplying practice leads to much idle time for capacity, inevitable replacements by metal, and, that means, also an overconsumption of it.

It would be entirely different if construction-industry enterprises in a region had a single organ of economic control--a rayon or interrayon production association to which general-purpose reinforced-concrete enterprises would be subordinate and which would be obligated to provide all construction projects in the region, regardless of agency subordination. Such associations should become the skeleton for a unified master plan for the development of the materials and equipment base for construction for the long term.

It is also necessary to raise greatly the role and effectiveness of plans for developing science and technology for construction. Today this plan is in the hands of the construction ministries, GKNT [State Committee of the USSR Council of Ministers for Science and Technology], USSR Gosstroy and USSR Gosplan. The single master here should be Gosstroy of the Union.

The improvement of organization and management is an important reserve for strengthening the construction base.

11409
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CONSTRUCTION

LACK OF HOUSING SLOWS NUCLEAR POWERPLANT CONSTRUCTION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Nov 80 p 1

[Article by correspondent A. Pasechnik and N. Stetsenko (special correspondent of YUZHNAYA PRAVDA) (Nikolevskaya Oblast): "Housing at the Warehouse"]

[Text] Construction of the first power block at the Yuzhno-Ukrainskaya AES, of 1 million kw capacity, is being completed. True, with a little lag behind the approved deadlines. For example, at the station's main facilities--the apparatus for isolation, the special building, the machine room and the chemical water purifier--this lag is 2-4 months. V. Fuks, director of the AES that is being built, and V. Podlepich, secretary of the construction administration's party committee, trace the cause of this situation mainly to two factors: interruptions in deliveries of the industrial equipment and a shortage of people.

Actually, at the board, after sorting through files of correspondence with the suppliers, we were convinced that the suppliers often let the construction project down. But for all that, it is difficult to give an unambiguous answer to whether the construction would have proceeded on schedule had there been no interruptions in deliveries.

So, then, to the shortage of people. It has been a chronic illness at the construction project, almost from the time the first stake was driven. At the board, we looked through many orders and instructions and requests of various dates. Send to the AES....Send a representative...Allocate to the AES....They sent things and represenatives, and they allocated. Specialists from power stations and construction projects of Russia and the Ukraine, from the Urals and Siberia, and from the Far East came to the scenic shores of the Yuzhnyy Bug, which were disturbed by the vast construction project. And in most cases they were sent not with business-trip credentials but with orders for permanent work.

But in the last 2 years here, together with this influx, an outflow has been noted. In the past, let's say, 3,000 people were accepted per year at the construction project, but almost 2,000 deserted it. In 1980 (the first 8 months): 1,170 people were accepted and 950 were discharged. And indeed those leaving are not rolling stones but builders, installers and operators, people well on in years, with families.

"At any moment, people with families," remarked one of the construction brigade leaders in a conversation with us. "You stay from half a year to a year in the closest village in an apartment, you lay out to a housewife for a room the same price that you pay at, for example, Sochi or Yalta during the health-resort season, and you wonder whether you should stay or not...."

The official information is: 3,200 people are in line to receive housing. (We recall that those standing in line are only those who have worked at the construction project a year or more.) In 5 years the housing inventory of the construction project has reached 144,000 m^2--these are 24 well-arranged apartment houses and 4 dormitories. However, the list of applicants is growing. And today, one hand is writing letters about recruiting another 2,500 people for the construction project, while the client, on the other, is going out of his mind: where will we house them? A serious lag in housing construction behind the erection of industrial facilities led to this--a practice that was sharply criticized at the October 1980 CPSU Central Committee Plenum.

There is no place to settle: brigades that are erecting housing in the settlement suffer for months, waiting for prefabricated reinforced concrete. At the same time we see with our own eyes a warehouse of the housing-construction combine crammed nearly to the cab of a lifting crane with...prefabricated reinforced concrete. As chief of the DSK [housing construction combine] N. Nosko explained to us, the parts here form the foundation for a whole 100-unit apartment house.

What's the matter? Why, with an annual capacity of 55,000 m^2 of housing, were only 47,000 m^2 built in the settlement in 2½ years, and right now production has stopped entirely--when there has been overstocking? V. Fuks impatiently heard out our baffled questions and pushed a bundle of documents closer to us:

"This paradox was started 4-5 years back, when the general designer--the Khar'kov Division of Teploelektroproyekt [All-Union State Institute for the Design of Electrical Equipment for Heat-Engineering Structures]--formulated the whole 5-year program for the housing buildup in an estimate based upon imported housing, although simultaneously it planned to erect here a housing-construction combine with its own plant. The combine at first assembled structures sent by enterprises of our system from Ryazan', Tol'yatti and Pripyat'.

"We already knew: the freight rates for imported parts did not justify themselves. In 5 years the arrears for housing were 50,000 m^2. Little has changed either since our own plant for reinforced-concrete articles was put into operation. Last year the task for housing introduction was met by only 72 percent."

"Why was the reorientation to housing produced by the local plant made so slowly?"

"It is easy to say 'reorientation,' answered V. Fuks. "All the free areas in the settlement were already 'reserved' for an imported housing series. And these have a different foundation, and so on. This means that it is necessary to redesign, and additional ceilings on design work are required. Right now we are managing to transfer future ceilings to better qualified designers. We are solving other questions also...."

"These assurances have been heard already for more than a year now," says N. Nosko, without concealing his annoyance. "But you do not build housing from them. After concentrating all our attention on production facilities, the client overlooks the erection of housing and social, cultural and personal-amenity facilities.

Only the unresponsiveness of his administrative machinery can explain the whole story, in which, on the one hand, we have no structure, and, on the other, there is no place to put it."

The observation, it seems, is correct, and it pertains also to the administrative services of Soyuzenergozhilstroy [State All-Union Association for the Construction of Housing at Power-Engineering Facilities]. Literally just days ago the housing builders managed to countermand completely incomprehensible decisions to ship here structure for series 84 housing, which is produced by the local plant, to be shipped from...Stavropol'. The DSK's still do not know what kind of "filling" there is to be in those 50,000 m^2 of housing that they are supposed to introduce next year. This uncertainty is affecting the retention of personnel of the DSK plant: turnover has already renewed the working staff twice. And last month 100 gave notice of their departure.

The oblast construction staff and the oblast committee of people's control have repeatedly observed that the slow pace of construction of housing in the AES's settlement has been provoked primarily by the client's mismanagement and irresponsibility in matters of design of the housing complex. Right now they are trying to put the whole blame on the Khar'kov designers mentioned above. For indeed, the defects of the 5-year program for building the settlement are obvious, as they say, to the unaided eye. Imagine founding such a settlement, where mostly the young will live, and not calling for the erection of a Palace of Culture, a cinema, and a sports hall....There is only one school, which is overcrowded now to the point where there are 11 first classes alone. The two kindergartens are doubly overloaded, and there are more than 1,800 children for the next one.

It is obvious that responsibility for this should be borne by USSR Minenergo [Ministry of Power and Electrification]. The Ukraine's Gosstroy also must pay attention to the situation that has been created: it is time to review and approve the preliminary design for development of the settlement's third microrayon, where it is still possible to "adapt" housing of a local series.

But the main thing, it would seem, is that the supervisors of the power station and the construction project should take a critical look not only at outside mistakes but also at their own, which right here, in the housing settlement, are evident, as they say, from any point of view.

We were frequently assured: the question, they say, has already been solved. On leaving the settlement, we noted that at one of the apartment houses an impressive citizen was clumsily pushing a stick into the opening of a mailbox. It was stopped up. After hiding the stick behind his back and blushing agonizingly, the citizen explained that there are in the settlement, altogether, two mail boxes, and by evening it is difficult to put a letter into them. Here you have to use a stick to compress the mail inside it....It is not necessary to solve any sort of questions here. It is necessary simply to put two or three more mailboxes up.

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CONSTRUCTION

DIFFICULTIES WITH CONSTRUCTION IN STERLITAMAK CITED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Dec 80 p 2

[Article by V. Korotun, acting chief engineer of Sterlitamakstroy [Trust for Construction in Sterlitamak] (Sterlitamak): "New Conditions--New Requirements"]

[Text] This year our economic activity will be evaluated according to the amount of construction commodity output. We visualize distinctly that the transition to management under the new system is not simply the replacement of one indicator by another. Important changes in the organization of production and in the engineering preparation at the construction site are required.

We builders stand up for industrialization, the combining of operations and other progressive work methods. It is the introduction of advanced experience that helped us to win repeatedly in All-Union socialist competition. But the application of advanced experience starts, as a rule, back with design. Therefore, it is doubly unpleasant when it is the designers themselves who put us in a difficult position from the very start. For example, they incorporate much monolithic structure in the designs.

We understand: monolithic structure, especially that which is nontypical, costs less, as a rule, than prefabricated structure. But this is where there is ideal organization of construction, which happens very rarely in practice because this does not always depend upon the builders themselves. And on the job it turns out that monolithic structure, taking up much time and human effort,is, in the final analysis, more expensive, and at times it even delays the introduction of a facility. Our precise operation for introducing facilities has been achieved in recent years by, among other things, the fact that we redesigned by our own efforts almost all the monolithic structure as prefabricated structure. Is it not better that the designers consider right off the actual disposition of forces of the construction workers and take this into account by incorporating more suitable variants in the designs?

Certainly, anyone acquainted with construction will smile when they tell him about the conveyor method of erecting roofs as if it were new. Naberezhnyye Chelny, Tol'yatti and Volgodonsk--these are just some of the places where this method earned its license. There were also smaller construction projects. But yet the conveyor method still is not in practice at our "ordinary" facilities. It is agreed--not at all facilities is it possible or desirable to build factory buildings on the conveyor. But at some, for example, at light-industry facilities, this is simply necessary.

All these are reserves that lie outside the scope of the construction project. Now about the internal reserves that depend upon us, the direct participants. Let us take a "textbook" situation: the vehicle comes with freight but there is no crane. Or the crane is ready but the vehicle has not arrived. This comes from lack of coordination, from imperfect management of the construction project. Previously, one often got away with it. Under the new system they will not, because while previously it was possible to "wring out" the amounts in a short time to compensate for the lag, now the lost day has a direct influence on the main indicator and it pushes back the date of introduction. And if such an interruption is not an exception, the dip does not disappear. One thing follows from this--the weekly and daily schedule should be observed with the invariability of law. But indeed up till now our trust has been applying these schedules only at the main complexes, which comprise only a fourth of the total number of construction projects. The causes are the great number of projects (about 400) and the scattered nature of the facilities. We see a realistic way out in the introduction of an automated control system, which would not only take fulfillment of all schedules under its monitorship but would also take part in developing the schedules. Already now, having introduced ASU's [automatic control systems] at large facilities, we feel a substantial improvement. For example, the system for controlling the hauling of mix (SUPER) finds an optimal variant for deliveries and now the endless alarms from brigade leaders, foremen and site superintendents have been curtailed.

But, however improved the automatic system may be, it is not within its powers to overcome disorganization of managers. Here is a fresh example: clients who are obligated to transmit project title lists for 1981 by 1 July had not done this completely even by November. And indeed we still need to coordinate the movement schedules of brigades and mechanisms, and the deliveries of materials and equipment resources....As a result, about 40 percent of the facilities enter the new year "blind," without any kind of schedules. And this is a direct road to failure to meet the prescribed deadlines.

Clients at times contribute their bit to the disorganization of construction. This does not always show up directly at the facilities we are building. For example, this year the administration of Bashspetsneftestroy [Bashkir Special Trust for the Construction of Oil Industry Facilities] carried out at one of our construction starts only a fifth of the planned work on laying utility and service lines. But I cannot bring myself to reproach them: all their people were overburdened at the facilities to be turned over this year. At some of them they overfulfilled plan amounts more than 2-fold. The reason? During the formulation of the plans the clients "forgot" to include a large number of operations, since they had not managed to receive the design and budget-estimating papers on time. As a result, at the leather and footwear combine alone, there turned out to be 120,000 rubles' worth of additional work! And there are many tens of such facilities.

The conclusion suggests itself: in order to raise the responsibility of the client, do not accept a facility until all the design and budget-estimating documentation has been received. But what is to be done then: for it is necessary to turn over the facility--the deadline has been approved! Penalties? But what is the sense of that, when the client, in paying us a fine, bears a much lesser loss than we do if we do not introduce the facility on time. Obviously, the existing statutes should call for higher pecuniary responsibility of the client for the introduction.

All these are difficulties which are, as they are called, of an organizational nature. But their causes, in my view, conceal primarily the fact that not by far are all managers of different ranks psychologically ready for conversion to the new system of management. An "amendment" to the deadlines for carrying out operating steps by 5-6 days (and more, it goes without saying) has not, up to the present, been considered disgraceful by them. But disruption of one of the schedules leads to a whole chain of later interruptions. And not much later in the year every worker will feel it in his pocket. For indeed the task of the supervisors of trusts and administration is not to wait until the thunder breaks out. We should not forget that people's faith in the success of the matter can waver if there is a lack of success in the first year of operation under the new system. And then it will be much more difficult to direct their activity into the required channel.

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CONSTRUCTION

LEGAL SERVICE TO ENSURE HIGH PRODUCT QUALITY

Moscow KHOZYAYSTVO I PRAVO in Russian No 10, Oct 80 p 91

/Article by L. Grigor'ev, chief legal consultant of Glavdal'stroy: "From the Construction Project to the Ministry"/

/Text/ Not so long ago the legal service of Glavdal'stroy and its technical administration made a thorough analysis of the role of legal means in improving the quality of the output being produced by our enterprises. As a result, the main administrative board issued an order entitled "On Improving the Role of the Existing Sanctions Against Producing Output of Unsuitable Quality."

What brought about, you ask, the need to publish such an order?

It would be no exaggeration to state that the quality of construction is, to a large extent, determined by the quality of the materials and items submitted for it. Unfortunately, these do not always meet the requirements set forth. Nevertheless, these items and materials are frequently produced by enterprises of one and the same organization. For example, in our main administrative board 90 percent of the output being produced is consumed by our own construction enterprises. Hence, the arbitration of the main administrative board is an extremely influential organ, affecting the quality of the output.

It must be acknowledged that in the agreements already concluded questions of quality are resolved in an extremely primitive manner. Often one may read such a formulation as the following: "the quality must conform to the existing GOST (All-Union State Standards)." But, of course, it is well known that a considerable number of items do not have GOST's at all. In such cases Article 38 of the Statute on supplies of production-technical type output permits an inspection to be carried out using agreed-upon samples. But in practice this article, as a rule, is ignored. Consequently, the solution is to approve standards. And essentially this is what is being done. For example, work on creating sectorial standards has been entrusted to the ministries. But the trouble is that often their plans are at the stage of coordination and approval for several years. There is an obvious lacuna here in the laws on standardization. To be sure, a deadline of 15 days has been established for coordinating plan standards. But in practice no one bears the responsibility for violating it. The thinking is that there is a need here for a procedure whereby in coordinating the plan prices would be introduced on the item: if no answer were received from the coordinating organizing by the deadline, then such silence would be considered as agreement with the plan.

There are also considerable difficulties for clients to exercise their right of imposing existing sanctions against suppliers for poor-quality output. The presently existing procedure requires, for example, a piece-by-piece inspection of the items involved. This entails large labor expenditures for administrative personnel and for all practical purposes is impossible. If, moreover, we also take into consideration the fact that arbitration herein would not be able to compensate the builders for the excess wages, then it is understandable why clients are extremely unwilling to utilize this right.

It is virtually impossible to encounter in the practice of departmental arbitrations lawsuits concerning financial losses connected with the supply of items performed with deviations from the standards. According to the law, these financial losses must be confirmed by job authorizations for the work performed with regard to eliminating the defects. But frequently finishing up the work on such items is performed half a year after they are received, i.e., at a time when the statute of limitation for the lawsuit, as established by the Instruction of USSR Gosarbitrazh (State Arbitration), dated 25 May 1977, is running out.

All this also compelled us to think about a solution to the problem situation which has been created. We were also prompted to do this by an analysis of the role of the legal service in the matter of improving the quality of output being produced, as a result of which there also appeared the above-mentioned order. In accordance with the latter Regulations were developed for inspecting output and for drawing up claims with regard to supply of products of unsuitable quality.

What is new in these documents is the fact that we have utilized things which have been forgotten, as, unfortunately, is frequently the case; the Methodological Directives on monitoring the introduction and observance of standards and engineering specifications in construction and the building-materials industry (MSU-1-75), as approved by USSR GOST and USSR Gosstroy on 30 May 1975. The main thing in this legal document is the check-up on the observance of standards and the application of economic sanctions.

Based on this document, we in our rules for the inspection of output provided the following stipulation: "In the case of a constant supply (no less than three times within three months) of output with the same production defects the parties may draw up an inspection act at the warehouse of the manufacturer and extend the results of the check-up to the past period of agreement.... Such an act goes into effect upon the conclusion by the Glavdal'stroy Central Construction Laboratory concerning the level of manufacturing technology or other permanent production factors of the given supplier." The promulgation of this stipulation has considerably facilitated our struggle against the poor quality of construction output; it has reduced the amount of documentation and the time required to compile it.

These same regulations have provided that a lawsuit in arbitration with regard to the cost of finishing up output on a project may be submitted during the course of six months after the work has been carried out. This is also in accordance with Article 83 of the RSFSR GK (Civil Code), according to which the right to instigate a lawsuit originates from the moment when a person learns of the violation of his right (in the given case the financial losses may be computed only after the elimination of the defects).

Considerable damage is also caused to builders by the poor quality mineral building materials. Thus, the principal supplier of sand for us is comprised by the ports of the Amur River Steamship Company. However, the standard agreement, as approved by the Ministr, of the River Fleet on 9 January 1968, is completely lacking in the term "supplier." It is considered that a river port only transports sand, although it does also dredge it up from the river bottom.

But when the question is posed as formulated by the Ministry of the River Fleet, it is impossible to require a high quality, since a carrier is not responsible for the quality of goods being delivered, as long as he does not damage them during the time of transport. It is impossible to understand how such a standard agreement could have been published; it contradicts the Statute on supplying production-technical type output. Couldn't the carrier enterprises be suppliers, depending on the nature of the actual economic relations? Yes, they could be. It is still more incomprehensible why this standard agreement still exists in general. As is well known, on 11 March 1977 the new GOST 8736--77 went into effect; it makes higher demands on sand for construction purposes. Inasmuch as all carrier regulations (in this instance the Regulations for hauling mineral building goods) are coordinated with the ministries concerned, the new GOST for sand should become the legal basis on which the question should be posed on abolishing this standard agreement of the RSFSR Ministry of the River Fleet.

Builders also experience considerable difficulties in checking up on the quality of cement being supplied. In accordance with GOST 22234--76 its quality can be determined only by the central laboratories of Orgproyekttsement, Giprotsement, and Mintsement. Inasmuch as approximately three months usually occur from the time that test samples are taken to the time when conclusions are reached, by this time the cement is usually all used up. It is obvious that in this case as well the problem must be resolved by means of changing the procedure for inspecting this type of output in the GOST.

As we have seen, the role of the legal service at all levels--from the construction project to the ministry--is vitally important in improving the quality of output being produced.

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CONSTRUCTION

NEW REFERENCE BOOK ON MATERIAL, TECHNOLOGY SUPPLY

Moscow MATERIAL'NO-TEKHNICHESKOYE SNABZHENIYE in Russian No 10, Oct 80 p 75

/Review article by N. Fasolyak, department chief, MINKh (Moscow Institute of the National Economy imeni G. V. Plekhanov): "A Useful Reference Work"/

/Text/ The literature on material and technical supply has been supplemented by an extremely interesting book, devoted to the supply of material resources of construction production.* This is the only book in which one may find answers to many questions concerning the organization and planning of construction production supply. It contains quite a detailed exposition of the structure and functional characteristics of numerous sub-divisions, the principles of the organization of construction's material and technical supply and complementation are revealed, a detailed description of supply's administrative structure is provided, and the tasks and functions of industrially self-sufficienttrusts and administrations are illuminated. The book devotes serious attention to the organizational forms and administrative functions of production-technical complementation in construction and installation trusts and home-building combines. Set forth quite fully are the system and methods of planning supply and complementation, including national economic planning and the planning of material and technical supply in the construction ministries as well as in construction and installation organizations.

A significant innovation is constituted by the section on the organization of economic ties between the suppliers and consumers of production-technical output and the procedure for supplying material and technical resources to construction organizations. Correctly set forth and well elucidated is the system of organizing construction supply by orders of the construction organizations through the organs of USSR Gossnab. A great deal which is useful for builders is contained in the section on the legal regulation of material-resource deliveries.

This handbook elucidates a wide circle of questions regarding the improvement of the normative base of planning and complementation. This is particularly important in connection with the publication of a number of new normative acts concerning the setting of norms for the expenditure of materials in construction, as well as in connection with the changes which have taken place recently in the methodology of production, estimate, and sectorial norm setting.

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*"Spravochnik po material'no tekhnicheskomu snabzheniyu i komplektatsii stroitel'stva" /A Handbook on Material and Technical Supply and Complementation in Construction/. Ed. by V. A. Spektor, P. B. Gorbushin. Moscow, Stroyizdat, 1979.

Of great practical value are the compiled tables, containing the new norms for the outlay of material resources per million rubles of estimated cost of construction and installation operations with reference to the most important sectors of the national economy and per thousand square meters of total apartment house area, formulated on the basis of present-day plans and calculations.

Also of importance are the new sections, lacking in previously published analogous reference handbooks. Cited here are methods for computing norms for the outlay of materials for repair and operational needs and norms of consumption and reserves of equipment for major construction.

Of great importance for on-the-job workers are those sections which illuminate the condition of the complementation and storage management system. They cite the characteristics of the production-complementation bases of the construction organizations and also the data about the organization and the transportation of building materials and items.

The book reflects questions important for supply such as the system of wholesale prices, the development and application of prices, the free construction site on local materials and reinforced concrete components, as well as the design calculations for complete sets of deliveries. Cited here are the fundamental positions with regard to cost accounting and finances of the organs of supply and complementation in construction with consideration being given to their experience in working under the new economic conditions. Problems are disclosed regarding material and technical supply and complementation of construction; practical experience is set forth on the application of the methods of mathematical economics and computers. Data is adduced on developments in the field of creating and introducing automated systems: norms for the outlay of material resources as well as the control of the material and technical provision and complementation of construction projects.

The authors have meticulously researched the norms, normative documents, and methodological directives issued by USSR Gosstroy, USSR Gosplan, USSR Gossnab, the ministries and departments, NIIMS (Scientific Research Institute of the Economics and Organization of Material and Technical Supply), NIIPiN (Scientific Research Institute of Planning and Norms), and other organizations.

Unfortunately, the handbook does not reflect certain important positions directed at improving cost-accounting inter-relationships between builders and clients, as well as future and five-year planning. Not all the book's sections in their nature meet the requirements of a reference work, since they do not contain the necessary data for the practical solution of certain problems. The book is set in a very small type size.

On the whole, however, this handbook is an extremely useful aid.

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BUILDING MATERIALS

IMPROVED METALWORKING METHODS DESCRIBED

Moscow SOVETSKAYA BELORUSSIYA in Russian 15 Nov 80 p 2

[Article by A. Litvin: "Penetrating into the Secrets of Metal"]

> [Text] The group of the Institute of Problems of Machine Reliability and Durability of the Belorussian SSR Academy of Sciences has successfully conducted many research studies connected with the development of advanced technological processes. Such processes facilitate a rise in labor productivity, improve reliability, and ensure the high operating properties of the various machines and instruments being produced by our industry.

Among the research being conducted in the Institute a significant place is occupied by the development of new methods for the mechanical processing [machining] of metals. During the present five-year plan alone staff members of the Institute--Doctor of Technical Sciences and Professor N. N. Dorozhkin, Engineer V. A. Karpushin, Senior Scientific Staff Members L. P. Kashitsyn, V. K. Yaroshevich, and others obtained more than 50 patents from the USSR State Committee for Inventions and Discoveries, including 10 patents received for developing new methods of mechanically processing non-rigid parts.

The inventions of Belorussian scientists, which have brought about a great economic effect, are finding wider and wider application in machine building, machine-tool building, instrument making, and other branches of industry. Letters have been sent to the Institute and the Minsk Tractor Plant, where many of the innovations by Belorussian scientists have been tested and put into production, for example, from the managers of the Leningrad Admiralty Plant, the Khar'kov Plant imeni Malyshev Production Association, the Kuybyshevburmash Association, and a number of other enterprises and scientific research institutions of the country. The writers of these letters request by way of technical aid that they be sent the engineering specifications for a number of new developments by Belorussian scientists. The Minsk scientists willingly satisfy the requests of production workers and their colleagues employed in the scientific research institutions of the republic and of the entire country.

Of great interest are the many new and advanced methods of processing metals, methods which were born at the Institute. Engineer Vyacheslav Alekseyevich Karpushin talks about one of these methods as follows:

The scientists thought for a long time about how they could increase the hardness of parts being machined on a lathe with high radial loads on the part, clamped in the machine-tool lathe chuck. Quite a few technical improvements were suggested, but they all had certain shortcomings. And then the staff members of the laboratory of wear-resistant coatings of the Institute of Problems of Machine Reliability and Durability of the Belorussian SSR Academy of Sciences, headed up by Doctor of Technical Sciences and Professor N. N. Dorozhkin proposed that the non-rigid parts be machined with the aid of expanding them in the process of cutting within the limits of elasticity of the material being processed. In utilizing the proposed method, a cylindrical workpiece /blank/ is clamped within two lathe chucks rotating toward each other and stretched. In such a way the workpiece is deprived of the possibility of bending from the action of the radial and tangential forces arising during cutting. This also leads to a considerable increase in the hardness of the part being machined and, consequently, likewise to increasing the parameters of the cutting cycle: the feeding, speed, and depth of the cut. The productivity of machining parts is increased by an approximate factor of 12--15.

"But what influence does such a method of metalworking exert on the quality of the part and the durability of the cutting instrument?"

"Several studies have shown," says Vyacheslav Alekseyevich, "that the quality of the surface being machined is improved significantly, while the service life of the cutting instrument is increased by 15--20 percent."

"Moreover, the new method of machining metals," continues V. A. Karpushin, "turned out to be quite simple from the point of view of design."

"But what economic effect can be obtained from introducing such an innovation?"

"The calculated economic effect," answers Vyacheslav Alekseyevich,"from introducing our inventions at Belorussian enterprises alone amount to about six million rubles. The Minsk Tractor Plant, where some of our methods of machining metals have already been introduced, this year expects to receive about 70,000 rubles in in savings."

Vyacheslav Alekseyevich was talking about only one new method of machining metals. But during the last few years several of them have been created here.

The key task of the further development of the national economy, as was noted at the October 1980 Plenum of the CPSU Central Committee, is increasing the quality and efficiency of production by means of utilizing the new achievements of science and technology in combining scientific developments with production. Prospective methods of machining metals by cutting will find broad application in many sectors of industry.

2384
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METALWORKING EQUIPMENT

RECENT DEVELOPMENTS IN MACHINEBUILDING, METALWORKING

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 Sep 80 p 2

/Article by N. Ryzhkov, first deputy chairman, USSR Gosplan: "The Heart of Industry"/

/Text/ During the present year the celebration of Machine Builder's Day is taking place amid circumstances of a particularly high degree of labor and political activity. Together with the entire nation, the machine builders are getting ready for a worthy celebration of the 26th Party Congress. How is this preparation being expressed? First of all, in successfully coping with the tasks of the culminating year of the 10th Five-Year Plan and in laying a firm foundation for carrying out the plans of the imminent 11th Five-Year Plan. And it must be said that hundreds of groups are celebrating their holiday with remarkable accomplishments.

At all stages of socialist construction the party paid and is paying the most constant attention to the development of machine building. And the machine builders well know the following fact: to a great extent, technical progress in all sectors of the national economy depends on their efforts, on the level of items produced by them, and on their quality. Only by possessing a powerful machine-building base can we carry out a well-planned re-tooling of enterprises, and on this basis steadily increase labor productivity, and more fully ensure the country with the means of production and consumer goods.

These days there has been a particular growth in the role played by machine building. We already see clearly the circle of problems which must be solved during the 11th Five-Year Plan. As Comrade L. I. Brezhnev pointed out in his speech in Alma Ata, "the tie-rod of further economic and social development must be the modernization of the basic sectors of industry--electric-power engineering,metallurgy and machine building, chemistry and transport."

For machine builders this means, first of all, a further deepening of thecourse of creating equipment of increased unit capacity, especially for sectors producing a large amount of homogeneous output. Constant attention must be paid to developing and mastering the production of equipment which is new in principle, allowing labor productivity to be increased several times over and the transition to be completed from producing individual machines to manufacturing systems and complexes for the full mechanization and automation of the most important production processes. There has also been a sharp increase in the importance of energy-conserving and material-conserving technologies, which ensures a comprehensive utilization of derived raw materials.

With regard to the volume of production Soviet machine building ranks second in the world, while in output of diesel locomotives, electric locomotives, metal-cutting machine tools, tractors, farm machinery, and other very important items it has a firm hold on first place. Moreover, the achievements of this sector are characterized not only by a growth in production volumes but also by the development of new machines which frequently have no analogies in foreign machine building. As examples we can cite a custom-built electric-power unit with a capacity of 1,200,000 kW and a hydraulic turbine with a generator having a capacity of 640,000 kW.

Atomic machine building is developing at an accelerated rate. During the current five-year plan the capacities and output of equipment for nuclear power stations has more than doubled, and the production of fast (fission) reactors has been set up. The introduction of advanced electric-power and electrical engineering equipment into the national economy will allow during the present year alone a saving of more than 10 million tons of conventional fuel, as compared with 1975.

There are notable achievements in metallurgical machine building. Operating in a stable manner at the Novolipetsk Metallurgical Plant and Azovstal' are high-capacity units for the continuous pouring of steel; these units were produced by the Uralmashzavod. The tube-rolling and tube-welding mills which were put into operation during the 10th Five-Year Plan possess better characteristics than analogous units turned out by foreign firms. Merit here lies with the main institute for metallurgical machine building of VNIImetmash (All-Union Scientific Research and Design Institute of Metallurgical Machine Building) as well as the Elektrostal' Heavy Machine-Building Plant. And the automated mill which has been put into operation at the Dneprovsk Metallurgical Plant imeni Dzerzhinskiy for the first time in world practice allowed railroad-car axles to be rolled with minimal tolerances under mechanical processing.

The workers in the field of chemical machine building have established a landmark in creating blocs with large-unit capacities, especially for the high-tonnage production of weak nitric acid, ammonia, and ethylene. This allows us to increase labor productivity by a factor of 2--4, to reduce production costs by 15--30 percent, and to curtail the expenditure of electric power by a factor of almost 8. Also of considerable importance is the fact that the Ministry of Chemical and Petroleum Machine Building has directed particular attention to increasing the plant readiness of equipment. During the current five-year plan alone this sector has made a 1.8-fold increase in the delivery of complete technical lines, installations, and units. As compared to separate deliveries, this will make it possible to reduce by almost 40 percent installation work at construction sites. As is well known, the initiative of the Ministry of Chemical and Petroleum Machine Building has been approved by the Party Central Committee.

Transport machine building has also been developed. Coming out onto the steel main lines are new diesel locomotives with capacities of 8,000 hp in two sections, as well as special-purpose and specialized railroad cars. Of great importance for raising the level of mechanizing operations in transport are containerized and package hauls, the volume of which has grown several-fold. According to calculations, the delivery in containers of 1 million tons of freight allows the freeing up of as many as 1,500 persons from freight-handling operations and a reduction of operating expenditures amounting to more than 10 million rubles.

Machine builders are paying a great deal of attention to the re-equipment of agriculture. During the present five-year plan the production of more than 200 new types of farm machinery will be set up. The output of mounted and trailer-type equipment for high-energy-consuming tractors will be increased by a factor of 1.9. All this will permit us to make the conversion to implementing a comprehensive mechanization of the principal processes of cultivation, harvesting, and the post-harvest processing of grain, rice, sugar beets, cotton, sunflower seeds, corn, potatoes, and flax.

Substantial shifts have occurred in all sectors of machine building. Many innovations have been created in heavy and construction machine building, the electric-appliance industry, instrument making, machine building for livestock breeding and fodder production, as well as for the light and food-processing industries. Of course, it is difficult to list them all. Suffice it to say that during the present five-year plan more than 17,000 models of various machines, instruments, and equipment will have been developed, while a large number of obsolete models will have been taken out of production.

While re-tooling other sectors, machine building is also intensively re-equipping itself. A course has been carefully marked out for mechanizing and automating production based on advanced technological processes. The number of automated lines has been quadrupled during the past ten years, while comprehensively mechanized and automated sections and shops have tripled in number. Equipment with programmed controls is being utilized on a broad scale. Genuine prerequisites have begun to emerge for creating shops and plants equipped with NC (numerical control) machine tools, governed by computers. There has been an increase in the production of other advanced metalworking equipment as well. There is a growing output of special-type and aggregate machine tools, while the proportion of forging and pressing machines is also increasing. Furthermore, industry will have received 1.8 times moreforging and pressing automatic units and automated lines than during the preceding period.

There has also been a substantial rise in the technical level and quality of machine-building output. More than 12,000 brands of machines, equipment, and instruments are now being produced with the State Badge of Quality. The proportion of items in the highest category of quality within the total volume of production for machine building as a whole has almost doubled, and by the end of the five-year plan it will reach 36 percent. Life has shown the following: the certification by categories of quality and the specification of tasks for the highest category of output has fully justified itself.

Thus, machine builders have accumulated quite a good stockpile for solving the problems confronting them. All the more reason for devoting the most serious attention to shortcomings which are holding back our further forward movement.

Recently, the CPSU Central Committee and the USSR Council of Ministers adopted a number of decrees in which they noted substantial shortcomings both in the development of machine building as well as in the activities of individual ministries. In particular, it was established that the structure and quality of the metalworking equipment being manufactured by enterprises of the Ministry of Machine Tool and Tool Building Industry is far from completely meeting the tasks of introducing advanced technological processes which would ensure the greatest possible growth of labor productivity, increase in the coefficient of metal use, and the improvement of output quality.

Low-waste technology is finding insufficient dissemination in machine building. On the one hand, this is explained by the shortage of advanced equipment, and on the other hand, by the inertia of certain managers of industrial and production associations and enterprises. But there really is experience in utilizing it: suffice it merely to refer to the results of the economic activity of the AvtoZIL (Motor-Vehicle Plant imeni Likhachev).

The metal consumption of machines and equipment being produced is still great. This pertains particularly to certain types of tractors, overhead cranes, motor vehicles, forging and pressing equipment, and other equipment. In certain branches of machine building there is not enough introduction of energy-saving technological processes, and the machines being turned out have an unjustifiably high fuel expenditure.

In recent years quite a bit has been done to mechanize and automate production. Nevertheless, there is still no basis for satisfaction. We do not have the right to forget that more than 7 million persons are now employed in hoisting and transport, loading and unloading, as well as warehousing operations. Moreover, half of them are working manually. The creation of the necessary equipment for them is a duty which all machine builders have to the national economy.

Another problem which has become acute at the present time is that of organizing the production of automatic manipulators, especially that of industrial robots with programmed controls. During the 10th Five-Year Plan our industry will have manufactured more than 2,700 units of them. However, a serious lag has been permitted to occur in this field. And it is not by chance that the decree of the CPSU Central Committee has sharply criticized the Ministry of Machine Tool and Tool Building Industry, the Ministry of Heavy and Transport Machine Building, the Ministry of Chemical and Petroleum Machine Building, the Ministry of the Electrical Equipment Industry, and the Ministry of Instrument Making, Automation Equipment, and Control Systems, who are to blame for not fulfilling the tasks assigned to them.

Specific measures have now been outlined to eliminate the shortcomings. But, to a great extent, their implementation will depend on well-thought-out solutions, persistence and consistency on the part of the sectorial staffs, as well as on initiative in the localities--in the groups at the various associations and enterprises. It is a well-known fact that even the best plans remain merely good intentions if they are not reinforced by daily organizational work.

The 26th Party Congress is approaching. It will adopt a program for the further development of the national economy for the 11th Five-Year Plan. And there can be no doubt that machine builders will make their own worthy contribution to its implementation, and as always, they will be in the forefront of the zealous competitors.

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METALWORKING EQUIPMENT

BAKU OFFSHORE BUILDERS CLAIM PLAN SUCCESSES

Baku VYSHKA in Russian 28 Dec 80 p 2

[Article by A. Makhmudzade, chairman of the joint construction-project committee of the trade union of Azmorneftestroy workers (Baku): "The Five-Year Plan Is Over: the 'Marine Sappers' Report"]

[Text] The collective of the Order of the October Revolution of Azmorneftestroy [Azerbaijan Offshore Trust for the Construction of Oil-Industry Enterprises] has reported on completion of 10th Five-Year Plan tasks. Having promoted competition for a worthy greeting to the 26th CPSU Congress and the 30th Congress of the Communist Party of Azerbaijan, the "marine sappers" have already done 2 million rubles' worth of construction and installing work more than was called for by the five-year program.

Among the trust collective's labor achievements are deepwater stationary platforms for cluster drilling of holes at the Field imeni 28 April and compressor stations for the gaslift method of recovering crude oil, the introduction of which is called for by the CPSU Central Committee's draft for the 26th party congress; a section in the construction of a gas pipeline that runs along the bottom of the Kuybyshev reservoir, and the introduction into operation of a number of other facilities for production capacity. It must be noted that labor productivity for our trust rose by nearly 16 percent during the five-year period.

The collectives of construction administrations Nos 2 and 3, which were the first to report completion of the five-year plan, especially distinguished themselves in the precongress competition. Installers G. Agayev, Yu. Vasilenko, Ch. Mamedov, Kh. Salikhov, A. Kerimov and many others showed themselves to be model shockworkers.

Azmorneftestroy workers, inspired by the CPSU Central Committee's draft for the 26th party congress, have committed themselves to doing more than a million rubles' worth of above-plan work by the end of the year.

11409
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METALWORKING EQUIPMENT

IMPROVED METHOD FOR COATING METALS CLAIMED

Baku VYSHKA in Russian 25 Dec 80 p 2

[Article by V. Yeremin: "Metal under Protection"]

[Text] One of the effective ways to save metal is to reduce metal waste. And this is a fairly large reserve. In particular, as much as 30-40 percent of pressworked blanks often go off into chips or shavings. The harm here is not limited just to waste of the metal. It is known that each ton of shavings or chips requires more than a thousand rubles of capital investment in machine-tool manufacture, power-engineering and other branches of the national economy.

The question suggests itself: why is such a large amount of metal converted into chips or shavings? One of the basic factors here is the historically prevailing sequence of operations, from the ingot to finished articles: rolling, forging, stamping, turning, hardening, tempering and so on. Here all known progressive industrial processes for heat treatment of metal require reheating of the ingots or parts to a high temperature. As a result, the surface thereof, interacting with oxygen of the furnace atmosphere, gets covered with a layer of scale, it becomes depleted by alloying components, and it becomes saturated with gases. In brief, the metal's upper layer loses so much of its quality that it has to be removed on a metal-cutting machine tool or cleaned in acids. For this purpose, a machining allowance of 5-10 mm thickness is left on the blank or billet. Until recently this was the sole reliable method for protecting surfaces and inner layers of the metal from high-temperature gas corrosion.

Scientists have now worked out new methods for dealing with corrosion, which were mentioned at the thematic exhibition, "Protective Industrial Coatings of Metals," which was organized in the machinebuilding pavilion at VDNKh SSSR [USSR Exhibition of the National Economy's Achievements].

The exhibition told about protecting metal and products made of it that are used in a seawater environment. For example, the industrial equipment of some petrochemical plants and oil refineries operate on recycled water taken from the sea. The presence therein of dissolved salts, oxygen and chemically aggressive gases causes strong corrosion of the industrial equipment. And so the service life of structural elements in the circulation systems of ventilation cooling towers is only 1-1.5 years.

The main and most vulnerable component of ventilation cooling towers is the diffuser. The rate of corrosion of its members, under the effects of recycled seawater, reaches 1 mm per year. As experience has indicated, in this case even coatings on a perchlorovinyl base, which also is extremely short-lived, are not saved. Because of this, scientists of the Scientific-Research Institute of Petroleum Machinebuilding have developed and recommend the following variants of paint-and-varnish coatings.

In the first variant, three layers of EP-711 enamel with a total thickness of 100-120 mm are applied on the surface to be protected. The second comprises four layers of EP-00-10 spackle-primer 150-200 mm thick. And, finally, in the third variant, there is one layer of EP-00-10 spackle-primer and three layers of EP-733 enamel.

In order to provide corrosion resistance for active parts at joints and rib stiffeners, they are greased with some types of inhibiting greases after the diffusers are assembled. This type of protection enables meterial and labor costs to be greatly reduced, idle cooling-tower time to be reduced, and the operating regime for cooling recycled water to be improved. The economic benefit from the use of one of the variants instead of a factory-applied coating is about 18,000 rubles for one ventilator.

The Novocherkassk Polytechnical Institute imeni Sergo Ordzhonikidze worked out a method for electrophoretic application of two-layer coatings.

It consists essentially of the following. With the electrophoretic method of applying protective coatings, polymer particles are deposited on the articles by the effect of an electrical direct current, the articles acting as the anode and the bath itself, which is made of stainless steel, as the cathode. This method is a most progressive one for applying protective polymer coatings, because it is executed in a strong electrical field. And this enables a very strong coating with good cohesion to be obtained, reliably protecting the metal from corrosion. That is why this method now finds wide application in the Soviet Union, the USA, Japan, the FRG and other industrially developed countries, in the motor-vehicle, transport, electrical-equipment and other branches of industry.

However, the existing method also has an important shortcoming, which is that, after application of the first polymer layer, the surface of the coated article becomes electrically nonconductive, as a result of which it is impossible to apply the second layer by electrophoresis. Either traditional coating methods or spraying in an electrostatic field has to be used. The protective properties of such systems are not very high because of poor compatibility of the water-diluent and the varnish-and-paint materials on the organic solvents.

A second layer can be applied by that same electrophoretic method if the first layer is made electrically conductive. Scientists of the Novocherkassk Polytechnical Institute solved this problem. They proposed to use more stable metals as electrically conductive fillers, such as nickel, as well as carbides or oxides of certain metals, in a finely dispersed state. These fillers can be introduced into any dispersion that is used for the electrophoretic deposition of polymers. In so doing, the charge in the bath is reduced to 20-40 volts, which appreciably reduces the consumption of electricity for forming the coating. Moreover, the quality of the work is raised.

The EVK-103 coating, which is intended for protecting heat-resistant alloys from high-temperature corrosion, is being demonstrated at the exposition. It raises by far the stability of the surface layers of alloys and provides them with highly reliable protection at temperatures of up to a thousand degrees. The application of a coating permits the oxidizability of the metal to be cut 2-fold to 3-fold and increases the reliability of the article's work.

In order to protect medium-alloy constructional steel from oxidation and decarburization during heat treatment, the use of an EVT-13 coating is recommended. It is applied on the surface of the metal by a paint sprayer. Coating thickness is 200-250 mm, and the economic benefit from its use is about 100,000 rubles.

The exposition gives a graphic presentation to specialists about many other technological applications for protecting coatings that help to save hundreds and thousands of tons of metal.

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METALWORKING EQUIPMENT

PETROLEUM MACHINEBUILDERS DESCRIBE PROGRESS

Baku VYSHKA in Russian 5 Dec 80 p 2

[Article by R. Mamedov, chief of the All-Union industrial association Soyuzneftemash [All-Union Association for Petroleum Machinebuilding]: "To New Heights"]

> [Text] "In chemical and petroleum machinebuilding, provide for the creation and output of highly productive equipment, including equipment for basically new industrial processes....
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> "Provide for the production of integrated drilling installations for general-purpose and cluster-drilling mounting, equipment for the mechanized operation and repair of holes, and automated and modular integrated equipment for the buildup of oil and gas fields." (From the CPSU Central Committee's draft for the 26th party congress, "The Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990.")

Our country is at the threshold of a historical event--the 26th Congress of the Communist Party of the Soviet Union. The draft of the CPSU Central Committee for the 26th party congress, which was published in the press a day or two ago, is being studied with the liveliest interest and enormous attention everywhere in labor collectives, including those of enterprises of the All-Union industrial association Soyuzneftemash.

The collectives of Soyuzneftemash enterprises and organizations have achieved substantial successes in recent years in developing petroleum machinebuilding. The rate of growth of production called for by the five-year plan was reached ahead of time, in 3½ years, and in September 1979 the goal of the five-year plan for growth of labor productivity was met, and in November the output volume set for the end of 1980 was reached.

In connection with this glorious labor victory, in December 1979 Leonid Il'ich Brezhnev congratulated personally the association's workers, and the association was awarded the Order of Lenin for great successes in fulfilling five-year plan tasks and socialist commitments.

Yet comparatively recently petroleum machinebuilding in the republic lagged greatly behind in rate of production growth and did not allow the petroleum industry's growing demands for modern equipment to be met.

In September 1969 the Bureau of the Central Committee of the Communist Party of Azerbaijan, after discussing the situation that had been created in petroleum machinebuilding, adopted a decree that defined the main direction for developing it, the main point of which was technical reequipping of the industry.

In fulfilling this decree, about 850 scientific and technical developments were introduced at the association's plants jointly with some scientific-research institutes--AzINmash [Azerbaijan Scientific-Research Institute for Petroleum Machinebuilding] and VNIIPTneftemash [All-Union Scientific-Research and Industrial-Design Institute for Petroleum Machinebuilding] and OKBneftemash [Experimental Design Bureau for Machinebuilding]--over a period of 10 years with an economic benefit of about 100 million rubles, including 15 automatic and semiautomatic lines and 15 mechanized flow lines and conveyor industrial flow lines, and 11 departments and sections were organized for integrated mechanization.

And products were updated simultaneously at a rapid pace. While in 1975 the share of new items produced by plants was 21 percent, in 1980 it exceeded 50 percent. The technical reequipping of plants during the Ninth and Tenth five-year plans was accompanied by integrated reconstruction of the plants. During the Ninth Five-Year Plan 29 million rubles' worth of fixed capital was introduced into operation, and during the Tenth more than 60 million rubles. This enabled production to be increased sharply.

The operating effectiveness of the association's enterprises and the quality of output were raised. While in 1975 the plants produced only 38 articles with the State Emblem of Quality, in 1980 this number had risen to 106, and the share of this output in total production volume rose 10-fold. Today it is now 32 percent.

Thus, during the Tenth Five-Year Plan, especially in 1980, its concluding year, the association's enterprises created a good base for successful fulfillment of the tasks of the new one, the 11th Five-Year Plan.

But much still remains to be done. During the 11th Five-Year Plan as a whole, the output of products will grow by 59.4 percent. Such a strenuous task is associated with the necessity for high-speed development of the oil and gas industry of West Siberia during the 11th and 12th five-year plans.

A great share of production of the country's equipment for recovering oil and gas falls to the VPO [All-Union Industrial Association] Soyuzneftemash, so we clearly perceive the whole importance of the tasks that have been set for us and the whole responsibility for their fulfillment.

The production capacity of the association's plants are now being used by 98 percent, on the average. In order to provide during the 11th Five-Year Plan for the planned growth in production, 190 million rubles must be spent to build new departments and sections and to further reconstruct other plants. New capacity will be introduced through these funds, including capacity for creating and producing the new, highly productive equipment that was called for by the "Main Directions." The Plant imeni F. Dzerzhinskiy will master during the 11th Five-Year Plan the output of bushingfree bottom-hole pumps at the Plant imeni Leyt. Shmidt and of new assemblies and hoists for well repair at the Kishlinskiy Machinebuilding Plant.

Responsible tasks for the timely introduction into operation and mastery of new capacity are being posed to collectives of the association's enterprises and organizations because of this. /Republic organizations, particularly the Azerbaijan SSR Ministry of Industrial Construction, should extend the necessary assistance to the association in this field. [in boldface]/

The growth in production of industrial output contemplated for the five-year period will be obtained mainly through growth in labor productivity. For this purpose it is planned to introduce into production at the association's enterprises during the 11th Five-Year Plan more than 500 scientific and technical developments. The number of automatic and semiautomatic, mechanized flow lines and conveyor flow lines and departments and sections with integrated mechanization are to be almost doubled and more than 200 progressive industrial processes are to be introduced.

Some organizational measures also are contemplated. It has been decided, in particular, to centralize within the association's framework a number of auxiliary production facilities, including the manufacture of cutting tools, industrial tooling and equipment repair.

The discovery and use of internal production reserves, especially worker-time reserves, will occupy a substantial place in developing the association and its plants and scientific-research organizations. Suffice it to say that, during the forthcoming five-year plan, each year more than 5½ million rubles' worth of the planned growth in production volume will be achieved by reducing losses of worker time and personnel turnover. This is an enormous reserve, so /we recommend that an indicator for the reduction of personnel turnover and loss of worker time be introduced among the plan indicators, and that the Ministry of Public Health plan for a reduction in loss of worker time for illness. [in boldface]/

No less than 40 percent of the planned growth in labor productivity will be provided for through conversion from manual labor to the mechanized labor for at least 250 workers per year, introduction of the brigade-type organization of labor, expansion of multiple machine-tool servicing, the combining of trades, the introduction of the Shchekino and Sumy methods of operation, and the centralization of auxiliary tasks and servicing activities.

As was called for in the "Main Direction," work to further update the products produced, reducing their metals intensiveness, raising their longevity, durability and reliability and improving their exterior form and efficiency under various conditions will continue. In all, it is planned to renovate and modernize more than 70 percent of the output produced, and the metals intensiveness thereof will be reduced by at least 1,500 tons per year.

Raising equipment quality still further remains one of our main concerns during the new five-year plan. The specific share of output with the State Emblem of Quality will be 42 percent in 1985 versus 32 percent in 1980. This main task of the five-year plan will be solved by enterprise collectives in collaboration with scientific-research institutes and OKBneftemash.

In accordance with the CPSU Central Committee and USSR Council of Ministers decree about improving planning and strengthening the influence of the economic mechanism on increasing production effectiveness and work quality, during the 11th Five-Year Plan planning at plants will convert from the gross output volume indicator to the standard net output indicator, that is, according to the value of the output created by the enterprise's laboring collective, without regard to the material expenditures for raw and other materials, outfitting articles, fuel, and energy supplied by outside enterprises.

The "Main Directions" point to the need for further development of socialist democracy, raising the initiative of the workers and expanding their participation in management, and all-around development of socialist competition. A unified scheme for organizing socialist competition is being used at the association's plants. As before, workers' personal plans for labor productivity and the personal creative plans of engineers, technicians and white-collar workers to raise production effectiveness and work quality will form the basis for the socialist commitments that are adopted.

As Comrade L. I. Brezhnev's speech at the October 1980 CPSU Central Committee Plenum emphasized, during the five-year plan the brigade type of work organization should become basic. Already now work is being done at the plants, together with VNIIPTneftemash, to convert a majority of the departments and sections to this mode. By the end of the 11th Five-Year Plan the share of the brigade type of work organization will be more than 60 percent in basic production versus the current 35 percent.

In accordance with the "Main Directions," during the 11th Five-Year Plan further improvement of the workers' material welfare and their housing and living conditions will be provided for. New dining rooms that seat more than 500 and are supplied with modern equipment and implements will go into operation, and the construction of a winter swimming pool will be completed at the health center. Twenty-two million rubles will be spent on housing construction alone, or double what was spent during the 10th Five-Year Plan.

Less than 3 months remain before the opening of the 26th Congress of the CPSU. VPO Soyuzneftemash workers are participating with an unprecedented political and labor upsurge in the nationwide socialist competition that is being promoted under the motto, "For the five-year plan a crashwork finish--for the 26th CPSU Congress a meritorious greeting." The plan for the first 11 months of the concluding year of the five-year plan was carried out 102.7 percent for volume of realization, and output worth almost 8 million rubles above the plan was realized.

In competing with honor for the forthcoming forum of the country's communists, the association's workers have adopted new, increased socialist commitments, which exceed the former ones by 2 million rubles in realization of above-plan output, and by 3 million rubles in the output of products of the highest quality category. They are filled with resolve to do everything possible during the 11th Five-Year Plan to undertake new, high goals and to make a meaningful contribution to realization of the party's majestic program for the country's economic and social development.

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METALWORKING EQUIPMENT

AZERBAIJAN'S ENTERPRISES SLOW IN TURNING IN SCRAP METAL

Baku VYSHKA in Russian 21 Dec 80 p 2

[Article by F. Aliskenderov, chairman of the Karadagskiy Rayon People's Control Committee: "Metal Scrap is Bread for Open-Hearth Furnaces"]

[Text] They don't call scrap metal "bread for open-hearth furnaces" for nothing. The use of this secondary raw material is very effective. It harbors economic advantages. This comparison tells about them: from a ton of the best ore, 250 kg of steel are smelted. But scrap metal yields a ratio of one-to-one. Thus a substantial reduction in costs for fuel, electricity and the work force is achieved, and an enormous number of railroad cars is released from ore hauling. Moreover, the use of scrap metal helps to preserve the country's ore reserves. And the draft of the "Main Directions," in noting the further development of ferrous metallurgy, requires that provisions be made for more complete use and high-quality preparation of ferrous metal scrap.

This is why right now, when this important document is being discussed, it seemed to me to be timely and necessary to have a talk about the situation that prevails in our rayon with respect to the procurement, processing and shipping of scrap ferrous metals.

Many enterprises, by fulfilling plans and commitments for the collection and turnover of scrap metal, make no small contribution in this matter. The Sangachaly Offshore Drilling Administration, let's say, turned over 2,360 tons of scrap metal in the first 10 months of the year, greatly surpassing the goal. Collectives of the NGDU [Oil and Gas Recovery Administration] imeni Narimanov, the Gobustan Building Materials Combine, the Elektrooytpribor plant, plants that make weighting compounds and weighted preparations, and other plants regularly yield a substantial amount of "bread for the open-hearth furnaces."

There is no big secret here how the high indicators for the turnover of scrap metal are achieved. There is no need for any special conditions. The administration and party and social organizations, simply by understanding the importance of this sphere of management, are concerned enough to see to it that metal equipment that has become unsuitable is not allowed to lie around but is stimultaneously written off as scrap and turned in.

Local party and soviet organizations are extending much help to Vtorchermet [State Trust for the Procurement and Processing of Secondary Ferrous Metals]. The staff under chairman of the rayon ispolkom planning commission A. Makarov is acting effectively. Staff members, together with Vtorchermet workers and advisers of the rayon committee for people's control, regularly make surprise inspections, discovering additional scrap metal resources at some enterprises. Thus, for example, during one of the latest surprise inspections at the Primorsk MURB [Offshore Exploratory Drilling Administration], the PMK-1 [Mobile Mechanized Column No 1] of Aztransgaz, and the Karadag Building Materials Combine, more than 200 tons of scrap were observed and turned over to Vtorchermet.

The rayon people's control committee keeps the scrap metal problem constantly in mind. A recent expanded session of the committee, at which enterprise supervisors were personally warned about personal pecuniary responsibility for shortfalls in deliveries of steel and iron scrap, was specially dedicated to this question.

At the same time, cases are often encountered in which supervisors of various enterprises underrate the importance of this task and do not see to it very well that the plan for turning over scrap metal is met, but conduct emergency campaigns from time to time. Among them is even one of the largest enterprises in the rayon--the NGDU of Karadagneft'. It was about 900 tons in arrears for scrap metal for the first 10 months of the year. And this did not worry anyone here seriously. For is it difficult to track down reserves? No, there are reserves, and they are not small. A check performed recently by the Baku People's Control Committee discovered that there were 980 tons of casing pipe in the NGDU at abandoned wells. And so that much metal, which the open-hearth furnaces were waiting for, was, in essence, disappearing--no one thinks about cutting up and recovering the pipe. And, surprisingly, this situation does not attract the attention of Azneft' [State Production Association of the Azerbaijan Oil Industry] at all.

And the trouble is not just the amount of scrap collected. There is harm in the lack of regularity of turning it over. As a rule, at the beginning of the month there is a calm at all Vtorchermet's receiving points, but at the end of the month there is, literally, a storm. In the Lokbatan department, at which scrap arrives mainly from the rayon's industrial enterprises, three-fourths of the scrap metal is procured in the last quarter. And this emergency campaign is fraught with unfavorable consequences--Vtorchermet's platforms prove to be overloaded, and their workers are not in a position to dress the scrap and to organize dispatch thereof to the country's various machinebuilding and metallurgical enterprises. Yes, and the enterprises themselves, by following this practice, are deprived of the opportunity to sort the scrap in accordance with the GOST [State All-Union Standard] by type and class. That is why expensive cast iron and even alloyed steels of special strength turn up in steel scrap. It is because of unplanned drives and scorn for GOST requirements that the Alyat ARZ [Motor-Vehicle Repair Plant] and the Kergez and Karadag building-materials combines, the Bulla MURB and many other enterprises did not carry out the plan for turning over cast-iron scrap--a most important component of procurement--for the first 10 months of the year.

The managers of many enterprises are not fulfilling government decrees about turning scrap over in sorted form and are turning it over without regard to dimensions. Why? The fact is that even large enterprises whose plans for scrap exceed 1,500 tons, such as the NGDU of Karadagneft', the SMURB [Ship-Based Offshore Exploratory Drilling Administration], and the Karadag Cement Plant, did not create special metal dressing departments equipped with the required scrap processing equipment. It is true, there is a mobres [resources mobilization] section on the

NGDU's books, but not enough flame cutters, motor vehicles and elevating and transporting mechanisms, which are needed for hauling scrap from remote oilfields, have been assigned there to the section.

The new goals that await us during the 11th Five-Year Plan make even more urgent the question of improving the organization of the collection and turnover of metal scrap. There are no few opportunities for this in our industrial region. It is necessary only to use them conscientiously, to operate thriftily, to write off in good time metal equipment that has become unsuitable, and, without crashwork projects but following the schedule, to turn it over. It would seem that the material incentives that are granted by law for workers who show activeness and zeal in this matter should be used more widely for this purpose.

Right now, on the threshold of the 26th CPSU Congress and the 30th Congress of the republic's communist party, the region's workers are filled with resolve to complete the five-year plan with high indicators in all spheres of economic activity, including the collection of scrap metal. This will become a meaningful contribution that will provide for further development of ferrous metallurgy.

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METALWORKING EQUIPMENT

AZERBAIJAN-MADE NIPPLEFREE PIPE EXHIBITED IN HUNGARY

Baku VYSHKA in Russian 11 Jan 81 p 4

[Article by R. Mamedov (Sumgait): "Azerbaijan Pipe at an Exposition"]

[Text] The collective of the Azerbaijan Pipe-Rolling Plant imeni V. I. Lenin was awarded an honorary testimonial for the well-organized display of its product--steel pipe--at the exposition, "Science, Technology and Economics in Azerbaijan," which was held in the capital of the Hungarian People's Republic--Budapest. Along with drill pipe with couplings welded to it, sleek pump and compressor pipe, casing and seamless pipe, and hot-formed pipe, TZK-2 pipe, which is used widely for freezing ground water when vertical vaults of underground mines are penetrated, was demonstrated for the first time at the convention. In 1978 this product received the State Emblem of Quality and was sent from the standard bearer of the republic's ferrous metallurgy to many parts of the country. Especially many customers are coming from the Belgorod and Bereznikov underground mine-drifting construction administrations of Shakhtspetsstroy [Special Trust for the Construction of Underground Mines], Samarkand's Samarkandgeologiya Association, Soligorsk and Moscow.

"TZK-2 pipe is produced only at our plant," says chief of the Science and Technical Information Center of the Agalar Zeynalov plant. "It is distinguished from casing pipe by the nipplefree design of the joints. That is, the pipe is screwed together without any intermediate part (for example, connecting piece or nipple). The number of joints and screwings during the erection of columns is cut in half."

The pipe, which is produced by Sumgait metallurgical workers, is exported to 20 foreign countries.

Items made by Azerbaijan's piperollers have been demonstrated at international expositions in Djakarta, Poznan, Bogotá and other cities of the world.

At present the plant is preparing to participate in two expositions. The exhibit, "From Congress to Congress," is being opened in Moscow at the VDNKh [Exposition of Achievements of the National Economy], where the Sumgait metallurgists will present their output in the "Ferrous Metallurgy" section.

Full-scale models also are being readied for demonstration at the international trade fair that will be held in Leipzig.

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METALWORKING EQUIPMENT

MACHINEBUILDING, METALWORKING TO DEVELOP RAPIDLY

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 9 Jan 81 p 2

[Article: "Increase the Production of Machinebuilding and Metalworking Products at Least 1.4-fold"]

[Text] The production of industrial output will grow by 26-28 percent during the five-year plan. Therefore, machinebuilding and metalworking will be developed about 1½-fold more rapidly than industry as a whole.

There are important reasons for this. The national economy will be receiving 600,000 fewer new workers in 1981 than in 1980. During the new five-year period less than a tenth of the whole increment added to industrial production will be obtained through increased worker manning. The rest will come from growth in productivity. And machinebuilding will have the deciding word here, for it is machinebuilding that rearms workers with highly productive weapons for work.

Naturally, support will be given to the production of equipment that will free workers of manual labor. During 1981 alone the production of machine tools with numerical control will be increased by 11 percent, while robot production will be increased 2.4-fold. And during the five-year period the production of automated lines, including automatic machines for assembly work, in which manual operations still reign, will grow sharply.

No fewer than 5 million people are engaged in manual work in loading and unloading operations. This sphere of activity is extremely "responsive" to expenditures. As experience indicates, a million rubles invested in equipment for basic production releases from 90 to 120 workers, while the same amount, if spent on the mechanization of transporting and warehousing operations, reduces workforce requirements by 500 persons. This is why the draft of the "Main Directions" contemplates speeding up the development of capacity for the production of equipment for this purpose.

In 1981 the production of forging and pressworking machines will be increased by 9.4 percent, of forging and stamping lines by 17 percent. Thus, from its very start, the five-year plan adopts the policy of an overwhelming growth of production.

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METALWORKING EQUIPMENT

BRIEFS

COMPUTER-AIDED DESIGN. In institutes you frequently see figures of punched tape against a background of well-proportioned multistory buildings. It has become one of the symbols of the close unity of architects and cyberneticists. This union of the representatives of two sciences has been fruitful. Optimal design created by means of computers yields metal savings of 10-15 percent without reducing the reliability of structure. In one day an "electronic designer" issues 60-70 drawings, raising severalfold an engineer's labor productivity. In order to picture the potential of automated designing lines more fully, I will note that they enable simultaneous output to start immediately for several tens of types of drawings and other estimating documentation. All this will enable not only an institute's in-house needs to be met but it will also enable solutions found to be sent to other organizations. [Excerpt] [Moscow PRAVDA in Russian 26 Oct 80 p 2] 11409

IMPORTED EQUIPMENT UTILIZATION--Moscow. The use of imported equipment has been improved at the capital's machinebuilding enterprises as a result of a check by people's controllers. At the Plant imeni Vladimir Il'ich the effectiveness of its workload was raised and the use of imported machine tools with numerical program control became more effective. Equipment that arrived at the test plant of VNIIelektroprivod [All-Union Scientific-Research and Design-Development Institute for Automated Electric Drive in Industry, Agriculture and Transport] has been installed and introduced into operation. The operation of coiling and banding machine tools produced by the FRG has started here. The introduction into operation of 10 twisting machines that have arrived from abroad has been provided for. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 Oct 80 p 2] 11409

ETTS-208D PERMAFROST PIPELINE EXCAVATOR--Tallinn. The first model of a new ETTs-208D excavator has been assembled at the Talleks association. One of the items of the commitments undertaken by the collective in honor of the 26th CPSU Congress was thereby carried out ahead of time. The machine is intended for laying oil and gas pipelines where there is permafrost. The first lot of the new excavators will be sent to Tyumenskaya Oblast. In all, the association will manufacture 50 ETTs-208D excavators this year. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 4 Feb 81 p 1] 11409

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